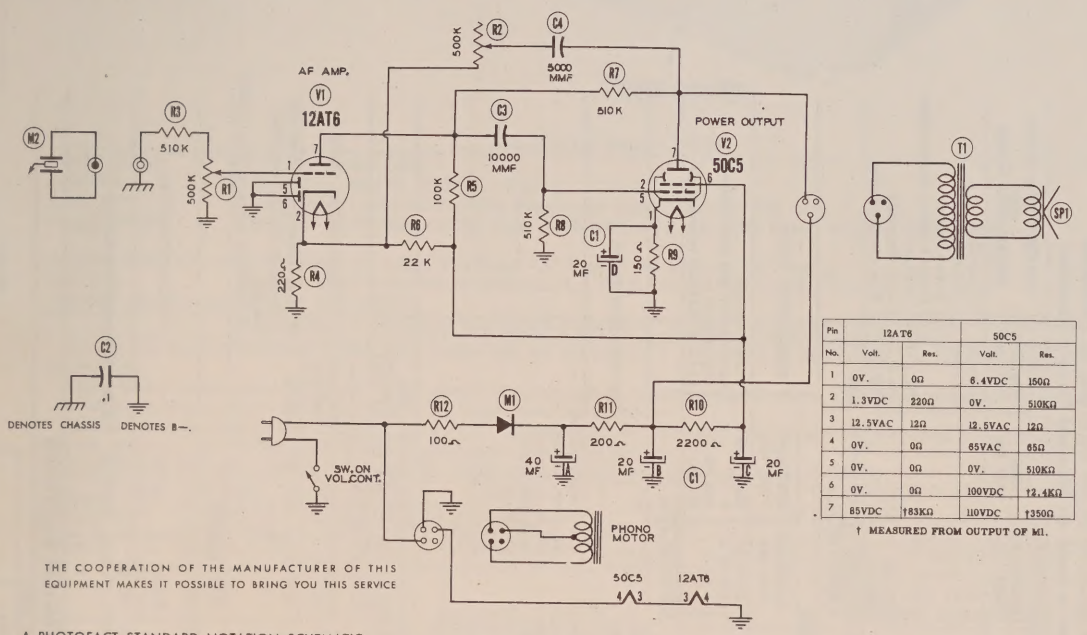
AIRCASTLE MODEL PM-358

AIRCASTLE MODEL PM-358

AIRCASTLE MODEL PM-358

TRADE NAME	Aircastle, Model PM-358
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Illinois
TYPE SET	AC Operated Record Player with 2 Tube Amplifier
TUBES (TWO)	Types 12AT6 AF Amp., 50C5 Power Output

POWER SUPPLY 105-125 Volts AC RATING .38 Amp. at 117 Volts AC



Pin No.	12AT6 Volt.	12AT6 Res.	50C5 Volt.	50C5 Res.
1	0V.	0Ω	6.4VDC	150Ω
2	1.3VDC	220Ω	0V.	510KΩ
3	12.5VAC	12Ω	12.5VAC	12Ω
4	0V.	0Ω	85VAC	65Ω
5	0V.	0Ω	0V.	510KΩ
6	0V.	0Ω	100VDC	†2.4KΩ
7	85VDC	†83KΩ	110VDC	†350Ω

† MEASURED FROM OUTPUT OF M1.

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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3824 NEWTON ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	AF Amp.	12AT6	12AT6	7BT	
V2	Power Output	50C5	50C5	7CV	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	1010	AF844D			ELS-15	Filter-Red
B	20	150		PRS25/25			UT-201	Filter-Yellow
C	20	150						Filter-Yellow
D	20	25						Output Cathode Bypass-Blue
C2	.1	400	804	P488-1			TM-1	Isolation
C3	10000		*	GP10000M	D6-103	821-01	TM-11	Audio Coupling
C4	5000		824	GP5000M	D6-502	811-005	1FM-25	Tone Compensation

* Items C3 and R5 are combined into one unit, obtainable under MFGR'S Part No. 819A.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	401	Q13-133	15/16-60-Z	BSK-60-S	Volume control
B	Switch		Not Req.	76-1	SPST SW #	#	Attach to R1A per instructions
R2A	500KΩ	½	408	Q13-133	AM-60-Z	BSK-60	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R2A per instructions

\# Attached at factory.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
R3	510KΩ	½	501	BTS-470K	Tone Compensation
R4	220Ω	½	514	BW-½-220	AF Amp. Cathode
R5	100KΩ	½	*	BTS-100K	AF Amp. Plate
R6	22KΩ	½	517	BTS-22K	Voltage Divider
R7	510KΩ	½	501	BTS-470K	Feedback
R8	510KΩ	½	501	BTS-470K	Output Grid
R9	150Ω	½	505	BW-½-150	Output Cathode
R10	2200Ω	½	504	BTS-2200	Filter
R11	200Ω	1	618	BW-1-220	Filter
R12	100Ω	½	524		Surge Limiter

* Items C3 and R5 are combined into one unit, obtainable under MFGR'S Part No. 819A.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2.3KΩ	4Ω	160Ω	.5Ω	Part of SP1	A-3876 ②	A-3025 ③	RO-2 ②	② Bend mounting tabs down and remount on original mounting bracket. ③ Fabricate new mounting bracket.

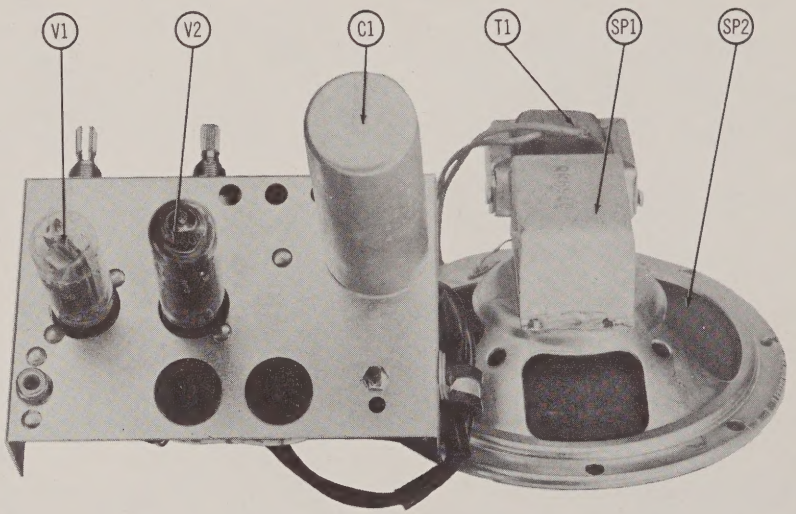
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
SP1	FIELD	V. C. IMP.	2601"	ST-105 ① MOD. P5-X,	5A07 ①	① Remount output transformer
	PM	4Ω				
	CONE DIA.	V. C. DIA.				
SP2	4 5/8"	9/16"				

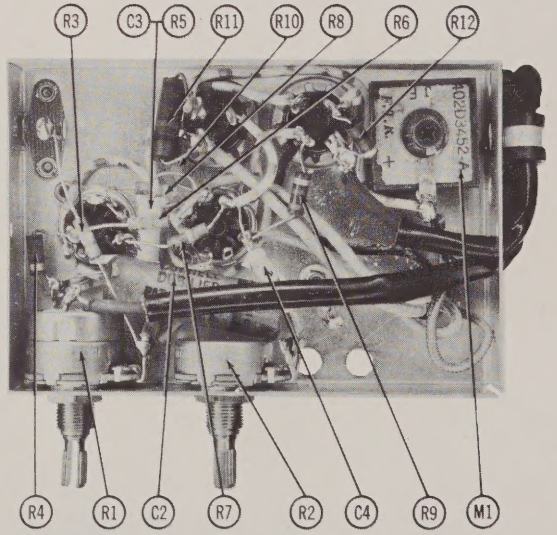
SELENIUM RECTIFIER

ITEM No.	RATING: CURRENT	REPLACEMENT DATA: AIRCASTLE PART No.	SYLVANIA PART No.		NOTES
M1	.035A	2723	NB-5		

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

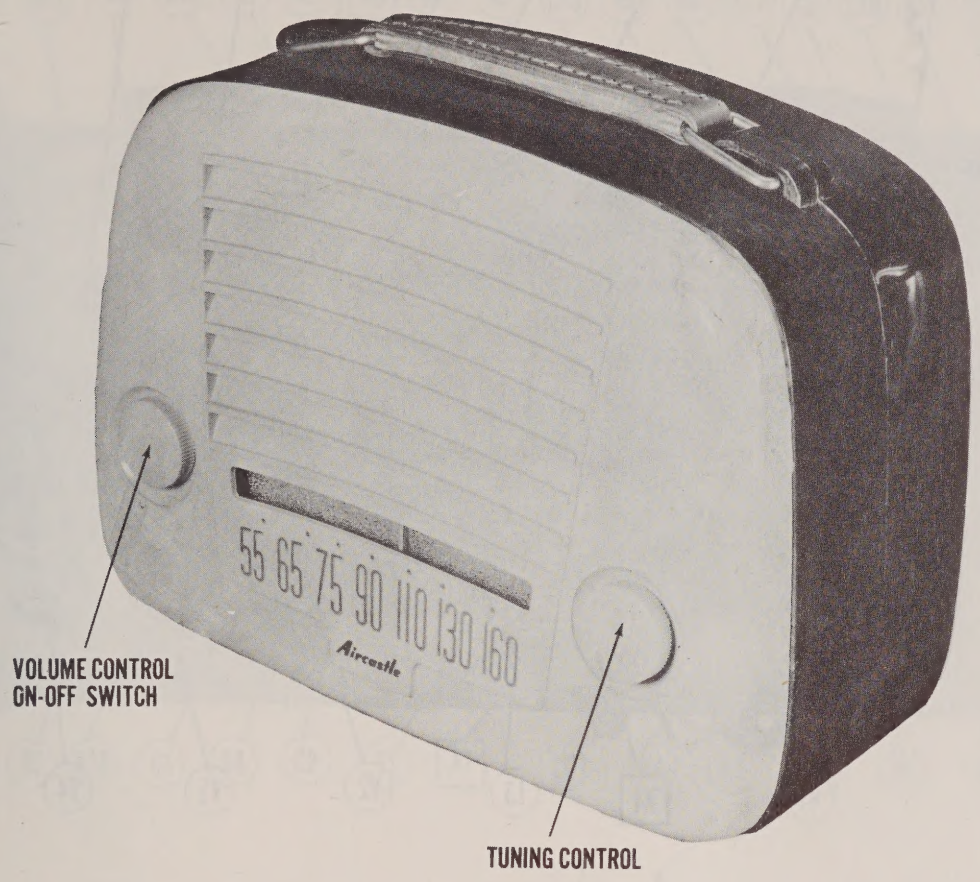


PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA: AIRCASTLE PART No.	ASTATIC PART No.: CARTRIDGE	ASTATIC PART No.: NEEDLE	SHURE PART No.: CARTRIDGE	SHURE PART No.: NEEDLE	REMARKS
M2	2504	ACD-J	C	W22AB	A62A A65MG	

AIRCASTLE
MODEL 102B (BATTERY-LINE OPERATED)

AIRCASTLE
MODEL 102B (BATTERY-LINE OPERATED)



AIRCASTLE
MODEL 102B (BATTERY-LINE OPERATED)

AIRCASTLE MODEL 102B

TRADE NAME	Aircastle, Model 102B
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Illinois
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 1R5 Converter, 1U4 IF Amp., 1U5 DET-AVC-AF, 3V4 Power Output, 117Z3 Rectifier
POWER SUPPLY	105-120 Volts AC-DC or 4.5 Volts "A" Supply and 90 Volts "B" Supply
RATING	.15 Amp. at 117 Volts AC or 100MA at 4.5 Volts DC and 9MA at 90 Volts DC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set the pointer 1 1/8 inches to the right of the left hand end of the dial backplate.

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

AIRCASTLE MODEL 102B

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amp.	1U4	1U4	6AR	
V3	DET-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3V4	3V4	6BX	
V5	Rectifier	117Z3	117Z3	4CB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	N-6641	AF1066D20A				▲ Filter
B	30	150						■ Filter
C	30	150						▲ Filter
D	100	25						Filament Bypass
C2	.05	400	N-1345	P488-05			TM-15	AVC Filter
C3	.1	400	N-1351	P488-1			TM-1	Filament Bypass
C4	.05	200	N-1345	P488-05			TM-15	Osc. Anode Decoupling
C5	.05	400	N-1345	P488-05			72P51	Line Isolation
C6	.01	400	N-1344	P488-01	D6-103	821-01	TM-11	IF Grid Filter
C7	200	500	N-6015	1468-0002	D6-201	GP2K-200	1FM-32	Diode RF Filter-See Note
C8	.006	600	N-4894	P688-006	D6-562	811-005	TM-26	Audio Coupling
C9	200	500	N-6015	1468-0002	D6-201	GP2K-200	1FM-32	AF Amp. Plate Bypass-See Note
C10	.006	600	N-4894	P688-006	D6-562	811-005	TM-26	Audio Coupling
C11	.002	600	N-6377	P688-002	D6-202	GP2M-002	TM-22	Output Plate Bypass
C12	.01	400	N-1344	P488-01	D6-103	821-01	TM-11	Filament Bypass
C13	.05	400	N-1346	P488-05			TM-15	Line Filter

Note. Some models use 100MMF in this application.

CONTROLS

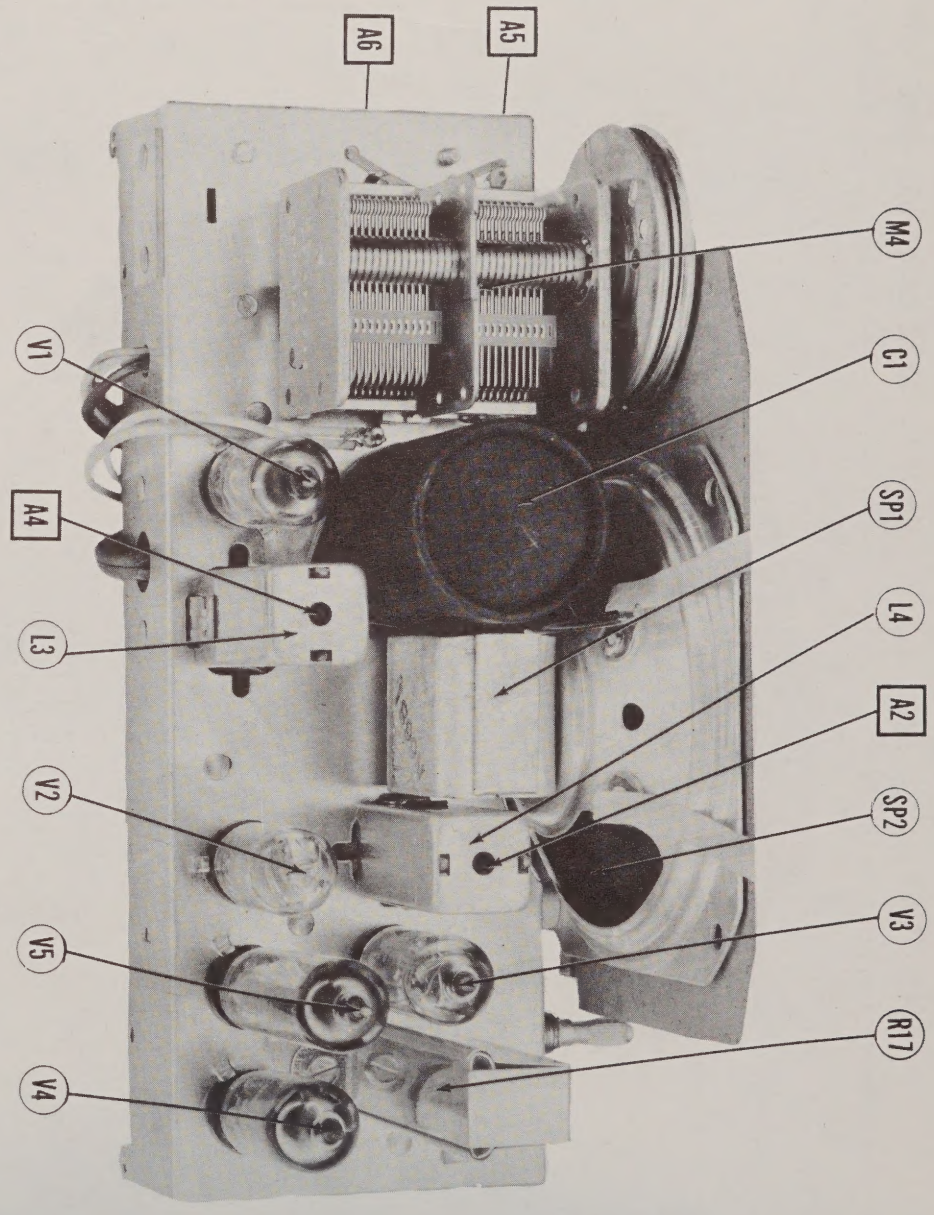
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	N-6779	Q13-137	AM-63-Z	AN-70	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch		Not Req.	76-2	SW-A2	K-157	Attach to R1A per instructions

Note. Install a 50KΩ resistor in series with the right terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft end, terminals down).

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½	N-2973	BTS-100K	Osc. Grid
R3	22KΩ	½	N-6012	BTS-22K	Osc. Anode Decoupling
R4	4.7 Meg.	½	N-4061	BTS-4.7 Meg.	AVC Network
R5	6.8 Meg.	½	N-4028	BTS-6.8 Meg.	IF Grid
R6	6.8 Meg.	½	N-4028	BTS-6.8 Meg.	AF Amp. Grid
R7	470Ω	½	N-4066	BTS-470	Filament String
R8	1 Meg.	½	N-2976	BTS-1 Meg.	AF Amp. Plate
R9	3.9 Meg.	½	N-5473	BTS-3.9 Meg.	AF Amp. Screen
R10	2.2 Meg.	½	N-4277	BTS-2.2 Meg.	Output Grid
R11	1200Ω	½	N-6793	BTS-1200	Filament String
R12	27Ω	½	N-6792	BW-½-27	Filament String-Wire Wound
R13	1200Ω	½	N-6793	BTS-1200	Filament String
R14	220KΩ	½	N-4026	BTS-220K	Bias Network
R15	470Ω	½	N-4066	BTS-470	Bias Network
R16	1200Ω	½	N-6793	BTS-1200	Filter
R17A	960Ω	5	N-6842		Filter-Wire Wound
B	960Ω				Filament Dropping-Wire Wound
R18	68Ω	2	N-6113		Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	9.3KΩ	3Ω	450Ω	.4Ω	N-6791	A-3879	A-2932	RO-16	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	N-6681	ST-113 MOD. P4-X	4A07	
	PM	3Ω				
SP2	CONE DIA.	V. C. DIA.				
	4"	9/16"				

R F COILS

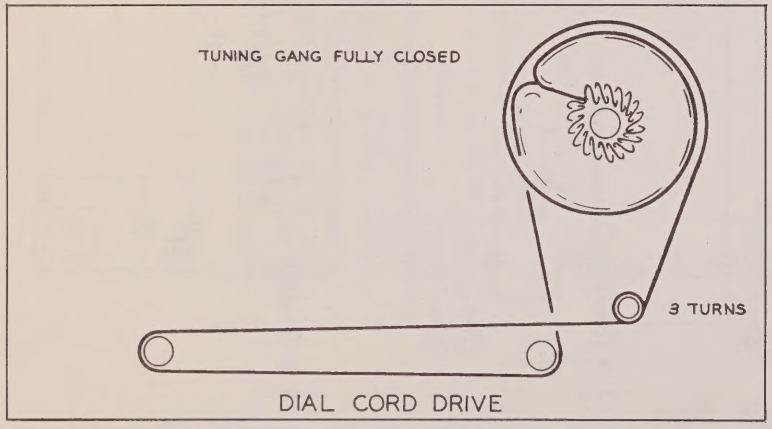
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
L1	Loop Ant.	1.2Ω		N-6781		
L2	Osc. Coil	2.5Ω	7Ω	N-6003	14-1074	
L3	1st IF	21Ω	21Ω	N-6865	16-6668	
L4	2nd IF	20Ω	20.2Ω	N-6866	16-6669	

BATTERIES

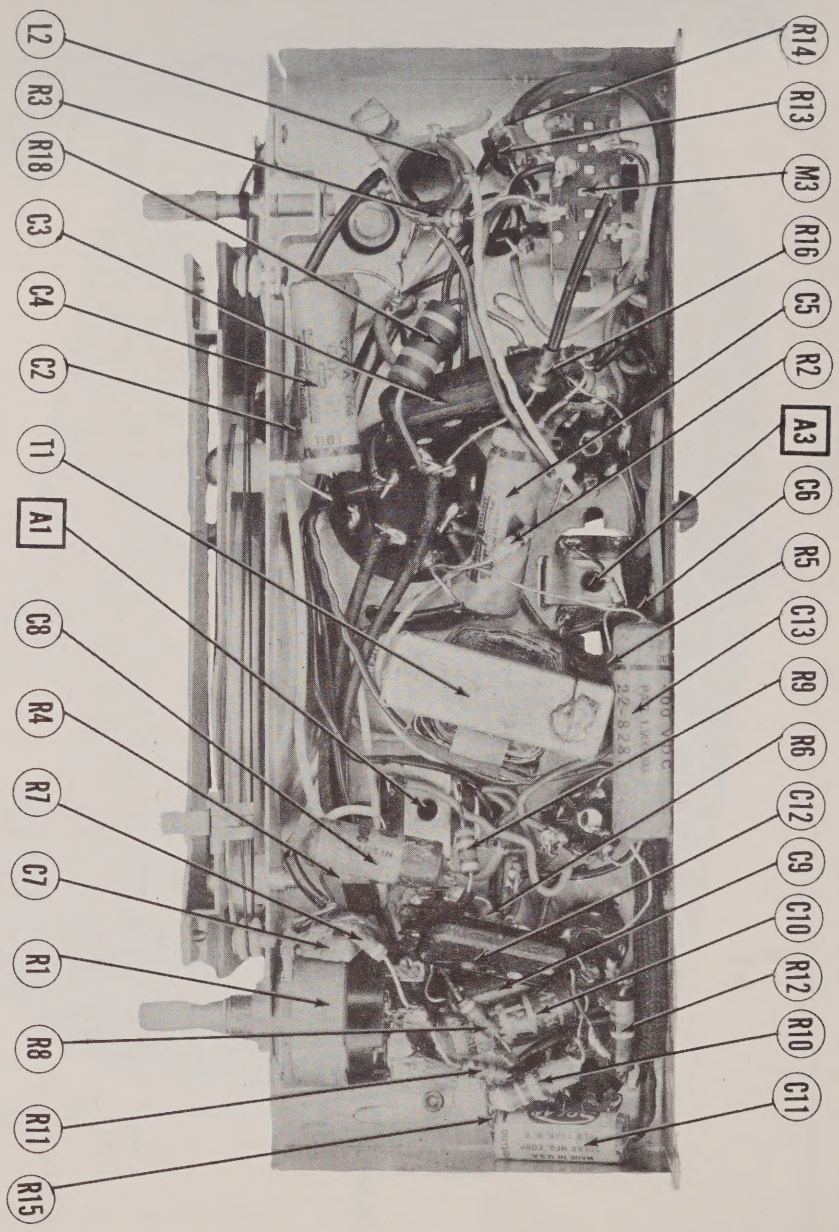
ITEM No.	VOLTAGE	AIRCASTLE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	4.5V "A"	76-1512	746			G3			
M2	90V "B"	76-1524		490			N60		

MISCELLANEOUS

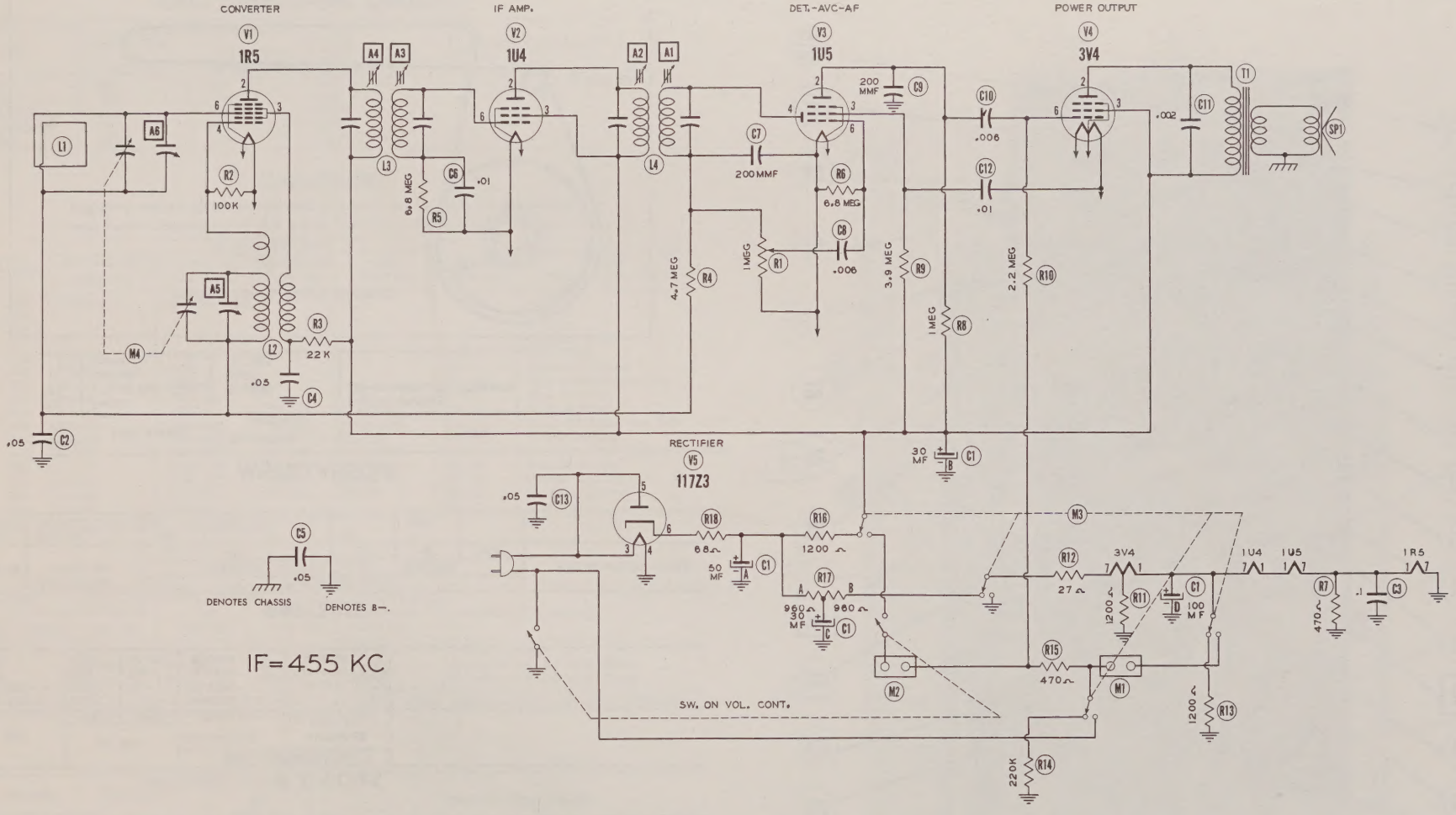
ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M3	Switch		AC/DC-Battery
M4	2 Gang Var. Cap.	N-5936	(35-194MMF, 27-372MMF)
	Cabinet	#267	
	Knobs	N-7565	



CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL 102B



VOLTAGE READINGS — ALL MEASUREMENTS TAKEN IN AC-DC POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	1.4VDC	90VDC	50VDC	§-14.5VDC	1.4VDC	.1VDC	0V.
V 2	1U4	2.9VDC	90VDC	90VDC	0V.	2.9VDC	.2VDC	1.4VDC
V 3	1U5	2.9VDC	14VDC	.5VDC	.3VDC	.2VDC	.1VDC	4.5VDC
V 4	3V4	4.5VDC	85VDC	90VDC	0V.	5.8VDC	0V.	7.5VDC
V 5	117Z3	0V.	8.5VDC	117VAC	0V.	117VAC	110VDC	0V.

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†1.3KΩ	†24KΩ	100KΩ	*	5 Meg.	*
V 2	1U4	*	†1.3KΩ	†1.3KΩ	0Ω	†	5 Meg.	*
V 3	1U5	*	†1 Meg.	†3.9 Meg.	1 Meg.	4.7 Meg.	6.8 Meg.	*
V 4	3V4	*	†1.5KΩ	†1.3KΩ	200KΩ	*	2.5 Meg.	*
V 5	117Z3	Inf.	80Ω	500Ω	0Ω	500Ω	2KΩ	Inf.

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM PIN 6 OF V5.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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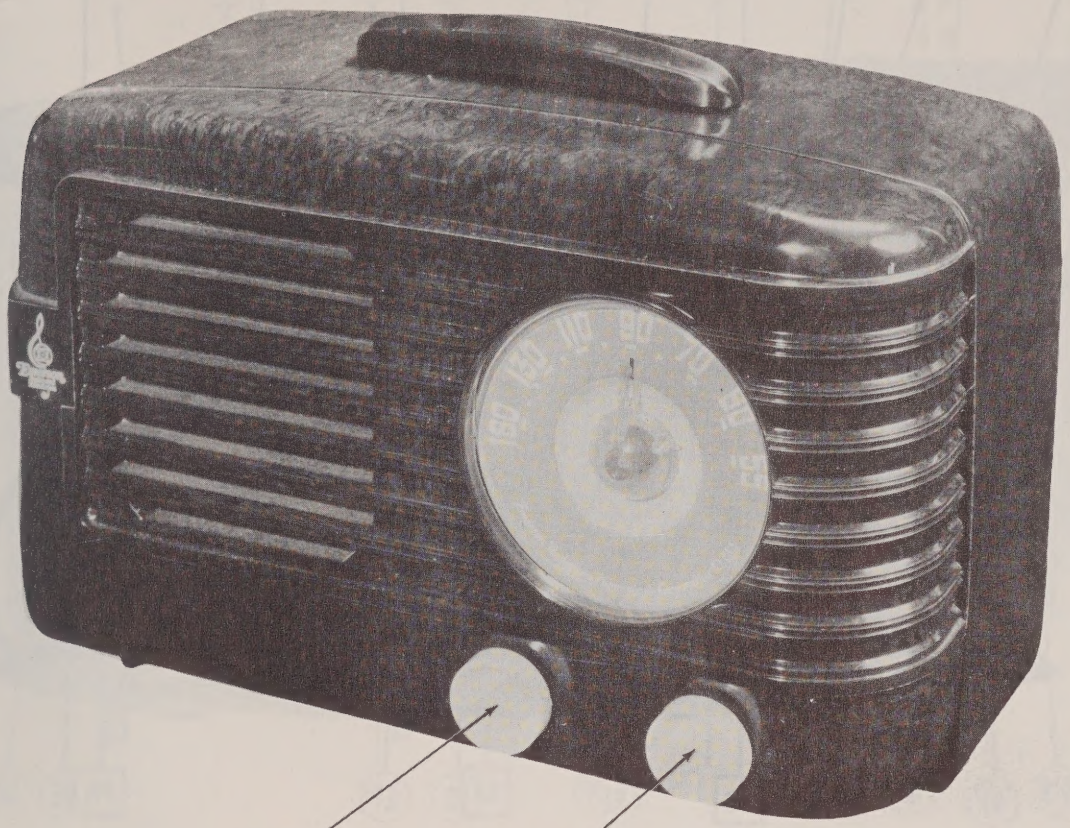
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

EMERSON
MODELS 642, 652, 653



EMERSON
MODELS 642, 652, 653

EMERSON MODEL 642

TRADE NAME	Emerson, Models 642 (Ch. 120117A), 652 (Ch. 120032B), 653 (Ch. 120080B)
MANUFACTURER	Emerson Radio and Phonograph Corp., 111 8th Ave., New York 11, New York
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 DET-AVC-AF, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC
RATING	.25 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set pointer to the calibration on left hand end of dial backplate. (on model 642, set pointer parallel to base of the dial.)

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum output. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

EMERSON MODEL 642

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	DET.-AVC-AF	12AT6	12AT6	7BT	
V4	Power Output	50B5	50B5	7BZ	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	150	925000 ‡	PRSA150/30-50			TA-530	Filter-Red
B	50	150						Filter-Green
C2	.1	200	920040	P288-1			TM-1	AVC Filter-See Note 2
C3A	212		470310	GP220M	D6-221	GP2K-220		Diode RF Filter
B	2000			GP2000M	D6-202	GP2M-002	34C3	Audio Coupling
C	212			GP220M	D6-221	GP2K-220		AF Amp. Plate Bypass
D	5000			GP5000M	D6-502	811-005		Audio Coupling
C4	.02	400	920020	P488-02			TM-12	Output Plate Bypass
C5	.05	400	920030	P488-05			TM-15	Line Filter
C6	.1	200	920040	P288-1			72P52	Line Isolation-See Note 1

Note 1. Used only in chassis 120032B and 120080B.
Note 2. Some models use .05MFD in this application. MFGR'S Part No. 920060.
‡ Model 652 chassis 120032B use MFGR'S Part No. 925175 in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	390015	Q13-133	AM-60-Z	BSK-60-S	Volume control-See note
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Not. Req.	Attach to R1A per instructions

Note. Chassis 120032B use 500KΩ control part No. 390146, chassis 320080B use 500KΩ control part No. 390145.

RESISTORS

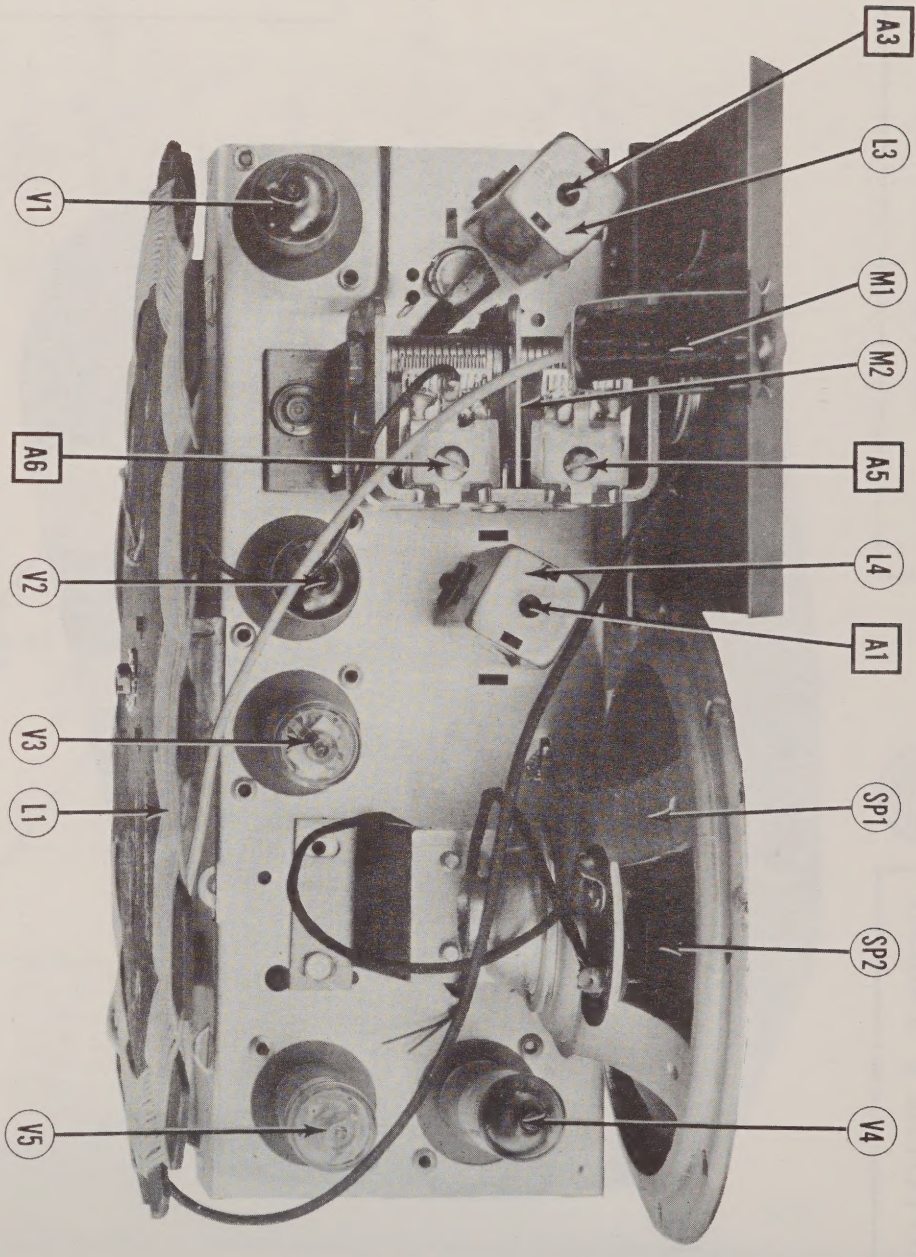
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IRC PART No.	
R2	15 Meg.	½	351490	BTS-15 Meg.	AVC Network-See Note 1
R3	22KΩ	½		BTS-22K	Osc. Grid
R4	120Ω	½	340270	BW-½-120	IF Cathode
R5	3.3 Meg.	½	351330	BTS-3.3 Meg.	AVC Network
R6	15 Meg.	½	351490	BTS-15 Meg.	AF Amp. Grid
R7	470KΩ	½	351130	BTS-470K	AF Amp. Plate
R8	470KΩ	½	351130	BTS-470K	Output Grid
R9	150Ω	½	340290	BW-½-150	Output Cathode
R10	1000Ω	1		BW-1-1000	Filter-See Note 2
R11	39Ω	1			Rect. Ballast-See Note 3

Note 1. Not used in all models.
Note 2. Some models use 1500Ω resistor in this application.
Note 3. Some models use 18Ω resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2000Ω	3.2Ω	200Ω	.9Ω	734057	A-3332 ①	A-3025	RO-2 ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA EMERSON PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-105 ②		
SP1A	PM	3.2Ω	180045	MOD. P5-X	5A07 ②	② Use universal mounting bracket provided.
B	PM		180071			
	CONE DIA.	V. C. DIA.				
SP2	4 7/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA MEISSNER PART No.	
L1A	Loop Ant.	1.5Ω		700033		Model 642
B	Loop Ant.	2.8Ω		700023 FH		Model 652 includes cabinet back
C	Loop Ant.			700051		Model 653 includes cabinet back
L2A	Osc. Coil	9.2Ω		716051	14-1073	Model 642
B	Osc. Coil			716026-1		Model 652
C	Osc. Coil			716026-2		Model 653
L3	1st IF	21Ω	21Ω	720021	16-6678	
L4	2nd IF	21Ω	21Ω	720021	16-6678	

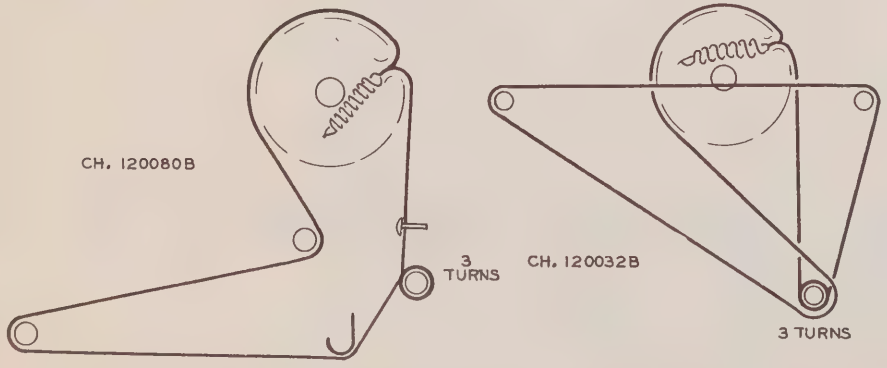
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA EMERSON PART No.		NOTES
M1	Bayonet	6-8	.15	Brown	807000		Type #47

MISCELLANEOUS

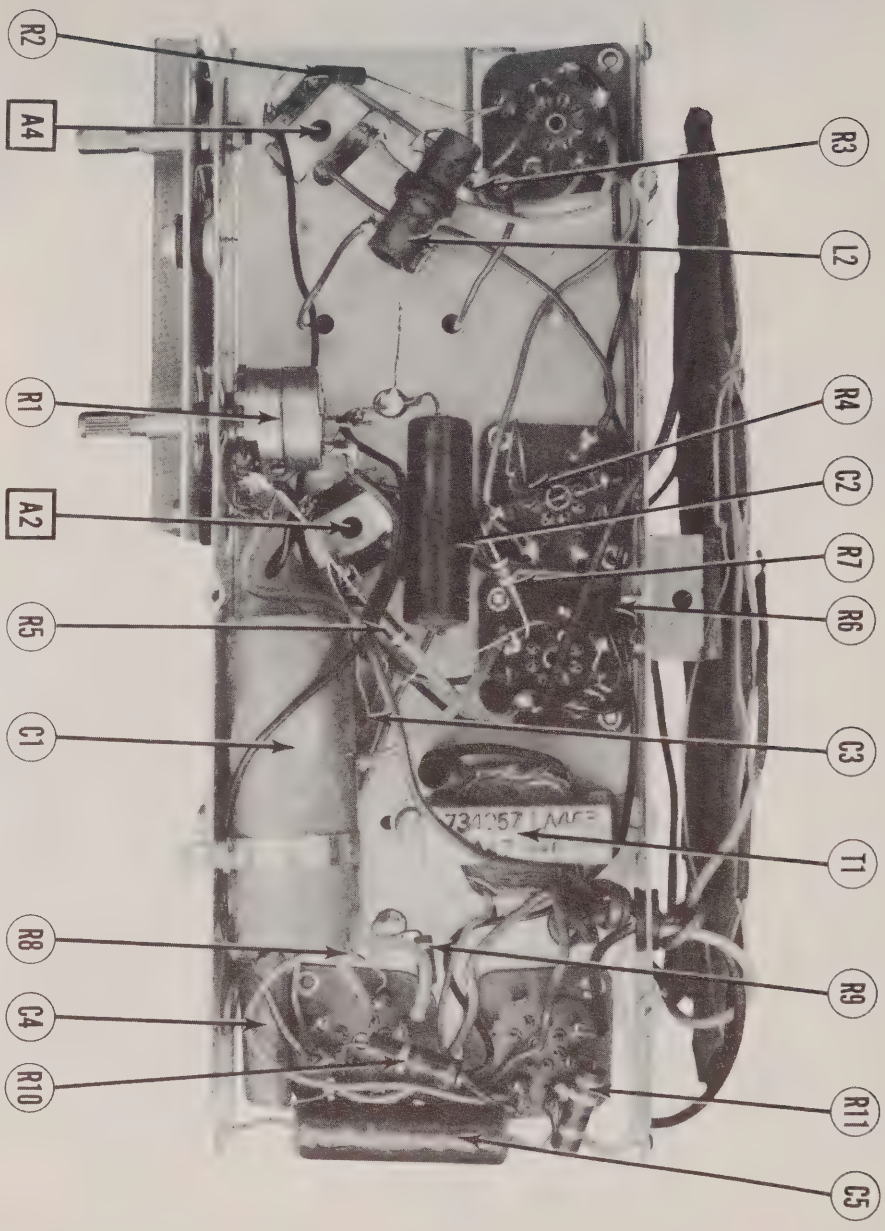
ITEM No.	PART NAME	EMERSON PART No.	NOTES
M2A	2 Gang Var. Cap.	900052	(19-432MMF, 27-162MMF)
B	2 Gang Var. Cap.	900071	Models 652, 653
	Cabinet	140326	Model 642
	Cabinet	140346	Model 652 (Ebony)
	Cabinet	140353	Model 652 (Ivory)
	Cabinet	140345	Model 653
	Knobs	460151	Model 642
	Knobs	460162S	Model 652, 653

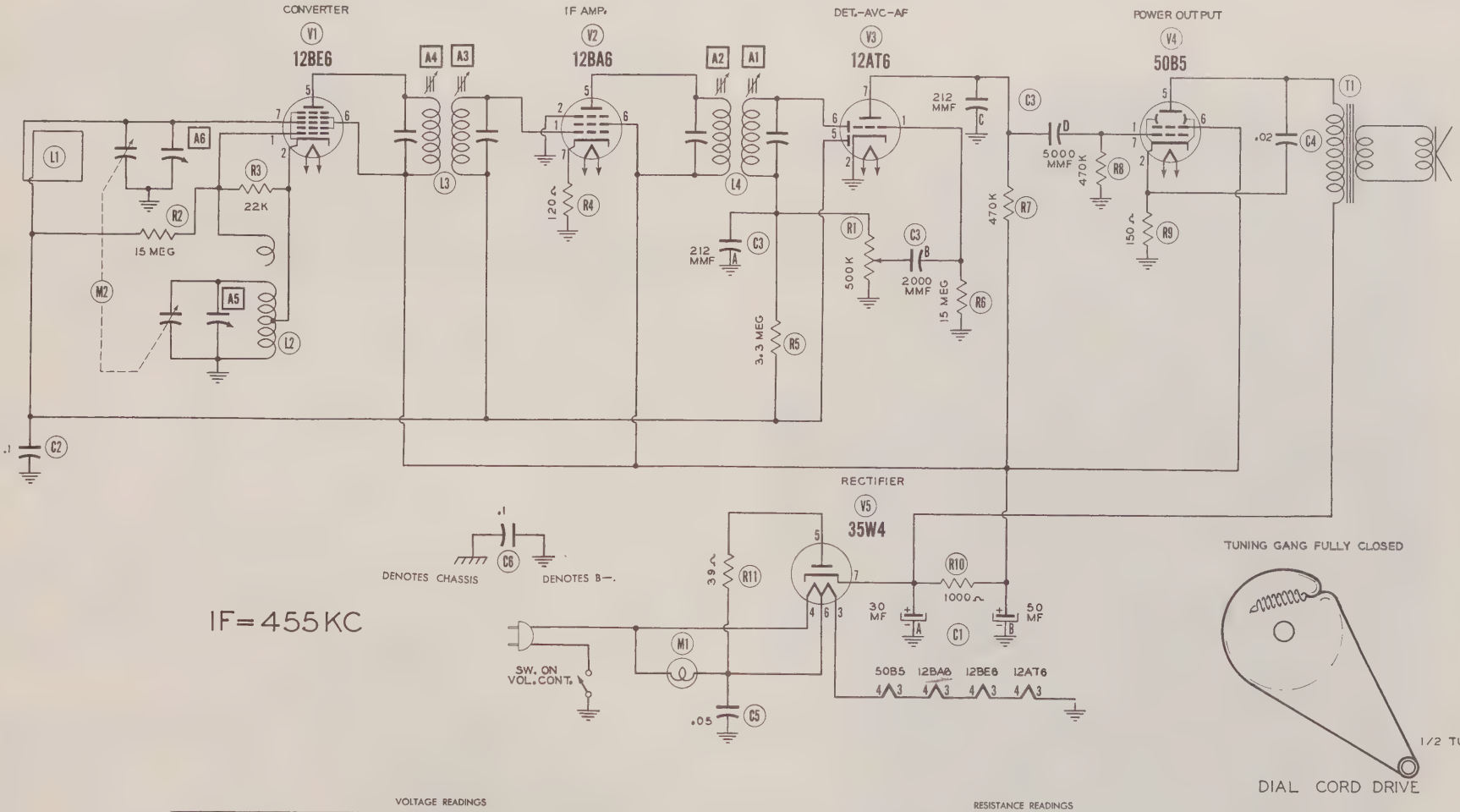
TUNING GANG FULLY CLOSED



DIAL CORD DRIVE
FOR DIAL CORD ON CH: 120117 SEE PAGE 4

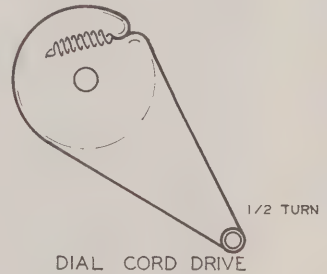
CHASSIS—BOTTOM VIEW





IF = 455 KC

TUNING GANG FULLY CLOSED



DIAL CORD DRIVE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-8.1VDC	0V.	12VAC	25VAC	95VDC	95VDC	-.3VDC
V 2	12BA6	-.3VDC	0V.	25VAC	38VAC	95VDC	95VDC	.5VDC
V 3	12AT6	-.5VDC	0V.	0V.	12VAC	-.7VDC	-.4VDC	41VDC
V 4	50B5	0V.	6.3VDC	38VAC	86VAC	105VDC	95VDC	0V.
V 5	35W4	0V.	0V.	86VAC	117VAC	109VAC	112VAC	112VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	21KΩ	1Ω	13Ω	26Ω	†1000Ω	†1000Ω	3 Meg.
V 2	12BA6	3 Meg.	0Ω	26Ω	38Ω	†1000Ω	†1000Ω	120Ω
V 3	12AT6	15 Meg.	0Ω	0Ω	13Ω	3 Meg.	500KΩ	†470KΩ
V 4	50B5	470KΩ	150Ω	38Ω	90Ω	†200Ω	†1000Ω	470KΩ
V 5	35W4	Inf..	Inf.	90Ω	120Ω	150Ω	118Ω	150KΩ

† MEASURED FROM PIN 7 OF V5.

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GENERAL ELECTRIC MODELS 64, 65, 500, 501, 505, 506, 507, 508, 509, 530

GENERAL ELECTRIC MODELS 64, 65, 500, 501, 505, 506, 507, 508, 509, 530

GENERAL ELECTRIC MODEL 507

TRADE NAME	General Electric, Models 64, 65, 500, 501, 505, 506, 507, 508, 509, 530
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park Syracuse New York
TYPE SET	AC Operated Superheterodyne Receiver with Electric Clock
TUBES (FIVE)	Types 12SA7 Converter, 12BA6 IF Amp., 12SQ7 DET-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC RATING .26 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 8 (Grid) of 12SA7 (V1). Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1500KC	"	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12SA7	12SA7	8R	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	DET-AVC-AF	12SQ7	12SQ7	8Q	
V4	Power Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	RCE-050	PRSA150/50-50			TVA-226	Filter-Red
B	50	150						Filter-Red
C2	.05	400	UCC-028	P488-05			TM-15	AVC Filter
C3	.05	400	UCC-028	P488-05			72P51	Line Isolation
C4	47	300	RCW-1043	1468-00005	D6-470	GP1K-47	1FM-45	Osc. Grid Cap.
C5	.05	400	UCC-028	P488-05			TM-15	RF Bypass
C6A	220			GP220M	D6-221	GP2K-220		Diode RF Filter
B	2000			GP2000M	D6-202	GP2M-002	34C3	Audio Coupling
C	220		RCW-3013	GP220M	D6-221	GP2K-220		AF Amp. Plate Bypass
D	5000			GP5000M	D6-502	811-005		Audio Coupling
C7	.003	600	RCC-074	P688-003	D6-302	GP2M-003	TM-23	Output Plate Bypass
C8	.05	600	RCC-045	P688-05			TM-15	Line Filter

CONTROLS

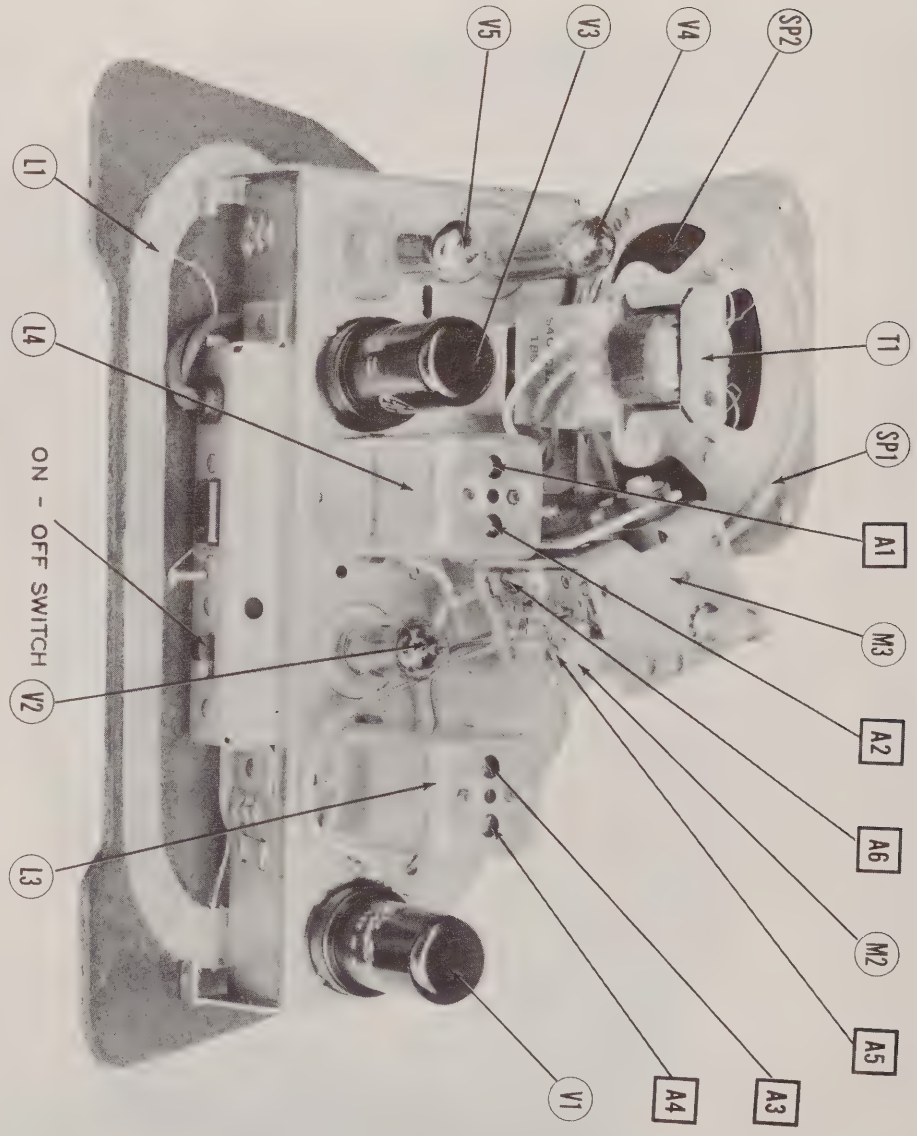
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA G. E. PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	RRC-054	Q13-133	AM-60-Z	BSK-60	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA G. E. PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½	URD-081	BTS-22K	Osc. Grid
R3	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	AVC Network
R4	47Ω	½	URD-017	BW-½-47	IF Cathode-See Note
R5	6.8 Meg.	½	URD-141	BTS-6.8 Meg.	AF Amp. Grid
R6	470KΩ	½	URD-113	BTS-470K	AF Amp. Plate
R7	470KΩ	½	URD-113	BTS-470K	Output Grid
R8	150Ω	½	URD-029	BW-½-150	Output Cathode
R9	1000Ω	2	URF-049	BW-2-1000	Filter
R10	22Ω	½	URD-009		Surge Limiter
R11	470KΩ	½	URD-113	BTS-470K	Isolation

Note. Not used in models 64 and 65.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		G. E. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2200Ω	3.9Ω	265Ω Tap ④ 7Ω	.5Ω	RTO-036	A-3330 ①	A-3031 ①	RO-3 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			G. E. PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113		② Remount output transformer.
SP1	PM	3.9Ω	UOP-421	MOD. P4-X	4A07 ② ③	③ Drill and tap magnet frame.
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

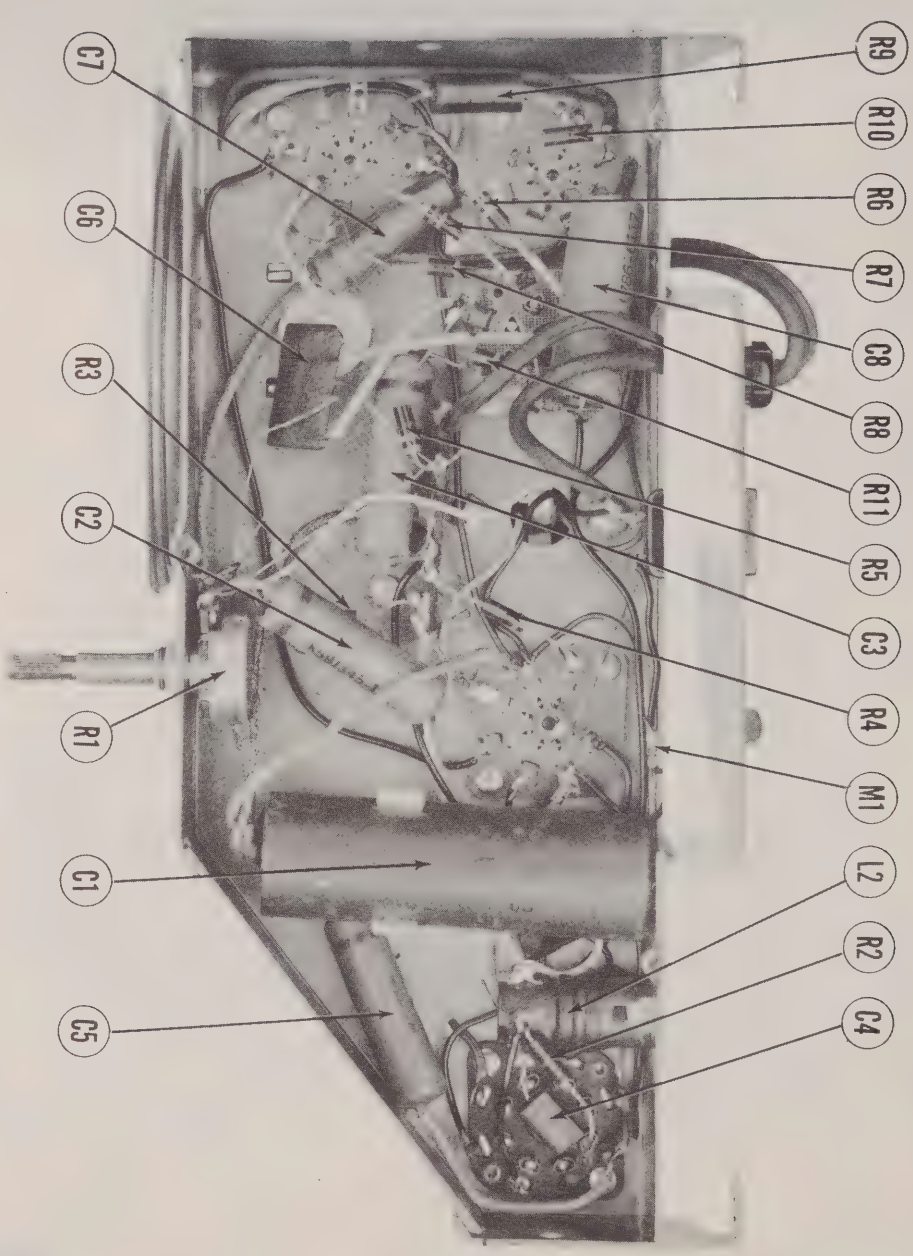
R F COILS

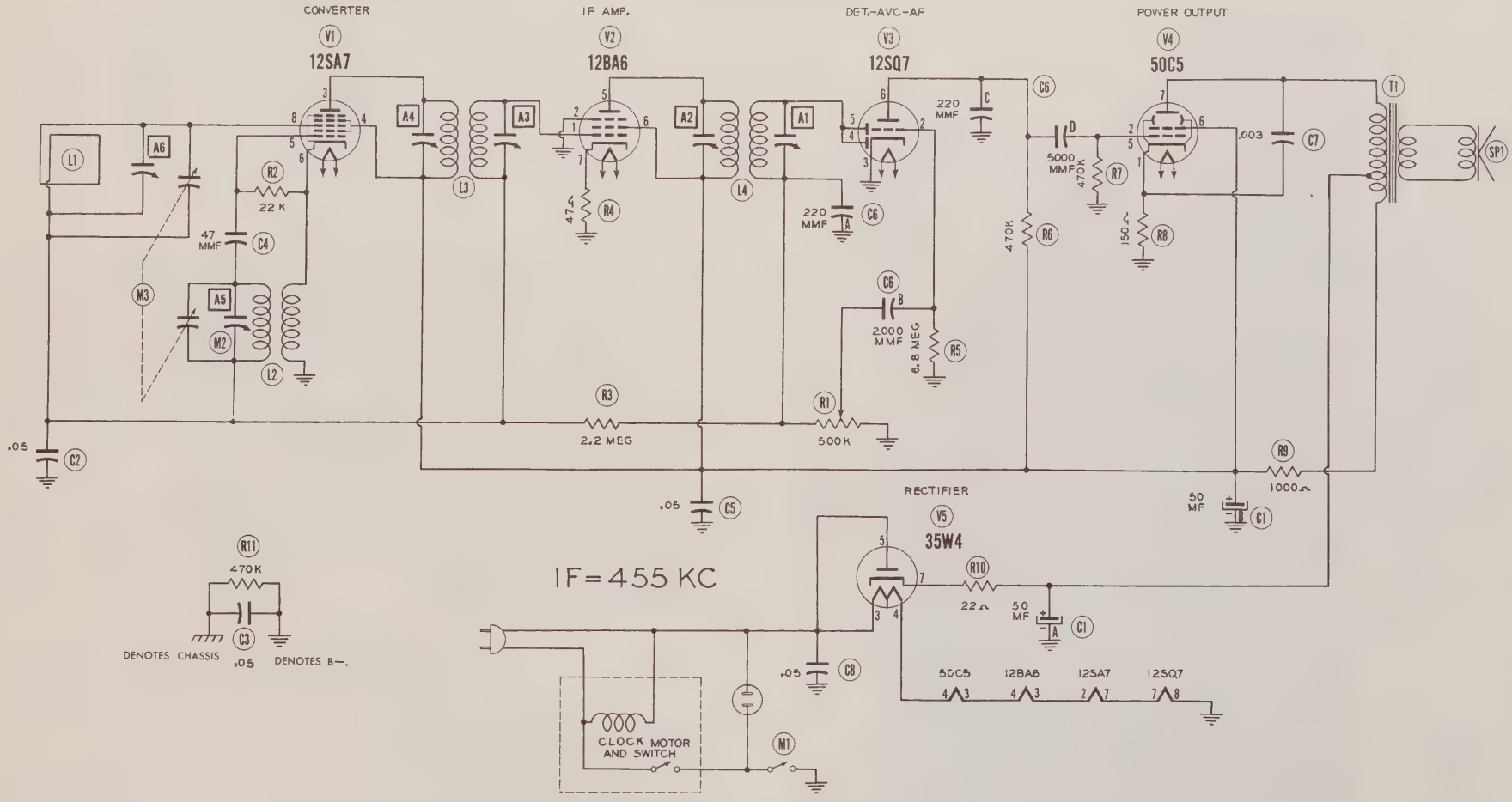
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	G. E. PART No.	MEISSNER PART No.	
L1A	Loop Ant.	3.5Ω		RAB-116		Models 507, 506, 505, 509 (includes cabinet back.)
B	Loop Ant.			RAB-120		Models 508, 530 (includes cabinet back.)
C	Loop Ant.			RAB-097		Models 500, 501 (includes cabinet back.)
D	Loop Ant.			RAB-054		Models 64, 65 (includes cabinet back.)
L2	Osc. Coil	.5Ω	7Ω	RLC-090	14-1073	
L3	1st IF	25.5Ω	25.5Ω	RTL-094	16-6658	
L4	2nd IF	25Ω	25Ω	RTL-095	16-6660	

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M1A	On-Off Switch	RSS-005	Models 505, 506, 507, 508
B	On-Off Switch	RSW-067	Models 509, 530
M2	Trimmer		Osc. Adj. (A5)
M3	2 Gang Var. Cap.	RCT-021	(23-466MMF, 21-148MMF)
	Dial Scale	RDS-090	Models 505, 506, 507, 508, 509, 530
	Dial Scale	RDS-047	Model 500
	Dial Scale	RDS-050	Model 501
	Dial Scale	RDS-082	Models 64, 65

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	0V.	24VAC	95VDC	95VDC	§-8VDC	0V.	12VAC	-.3VDC
V 2	12BA6	-.3VDC	0V.	24VAC	36VAC	95VDC	95VDC	.5VDC	
V 3	12SQ7	0V.	-.6VDC	0V.	-.6VDC	55VDC	12VAC	0V.	
V 4	50C5	6VDC	.1VDC	36VAC	85VAC	.1VDC	95VDC	115VDC	
V 5	35W4	125VDC	123VDC	117VAC	85VAC	117VAC	90VAC	125VDC	

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	470KΩ	26Ω	†1000Ω	†1000Ω	22KΩ	.5Ω	13Ω	2.7 Meg.
V 2	12BA6	2.7 Meg.	0Ω	26Ω	38Ω	†1000Ω	†1000Ω	47Ω	
V 3	12SQ7	470KΩ	6.8 Meg.	0Ω	500KΩ	500KΩ	†470KΩ	13Ω	0Ω
V 4	50C5	150Ω	470KΩ	38Ω	90Ω	470KΩ	†1000Ω	†285Ω	
V 5	35W4	50KΩ	52KΩ	120Ω	90Ω	120Ω	95Ω	52KΩ	

† MEASURED FROM PIN 7 OF V5.

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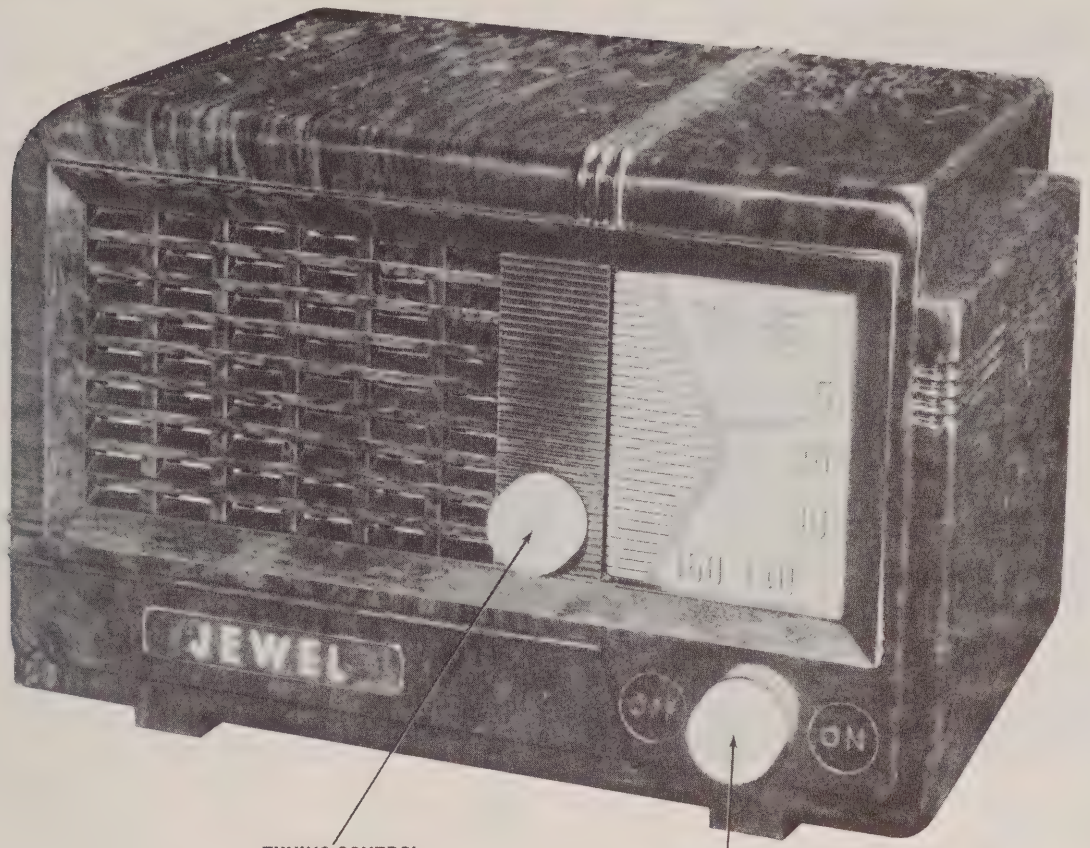
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

JEWEL
MODEL 955



JEWEL
MODEL 955

JEWEL MODEL 955

TRADE NAME	Jewel, Model 955
MANUFACTURER	Jewel Radio Corp., 10-40 5th Ave., Long Island City 1, New York
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types 12BE6 Converter, 12AT6 DET-AVC-AF, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .24 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set the pointer so it points straight up.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to chassis.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2,	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	200MMFD	High side to antenna terminal on antenna coil (remove hank antenna). Low side to chassis.	1620KC	"	"	A3	Adjust for maximum output.
3.	200MMFD	"	1400KC	"	"	A4	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

JEWEL MODEL 955

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: JEWEL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	DET-AVC-AF	12AT6	12AT6	7BT	
V3	Power Output	50B5	50B5	7BZ	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: JEWEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150		PRS150/30-40			TA-430	Filter-Red
B	30	150						Filter-Blue
C2	.1	200		P288-1			TM-1	AVC Filter
C3	150	500		1468-00015	D6-151	GP2K-150	1FM-315	Diode RF Filter
C4	.004	400		P688-004	D6-472	GP2M-004	TM-24	Audio Coupling
C5	.01	400		P488-01	D6-103	811-01	TM-11	Audio Coupling
C6	.01	400		P488-01	D6-103	811-01	TM-11	Output Plate Bypass
C7	.04	400		P488-04			TM-14	Line Filter
C8	.004	400		P688-004	D6-472	GP2M-004	TM-24	Ant. Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JEWEL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2 Meg.	½		Q13-139	AM-66-Z	AN-76	Volume control
B	Shaft			Not Req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch			76-1	SW-A	K-155	Attach to R1A per instructions

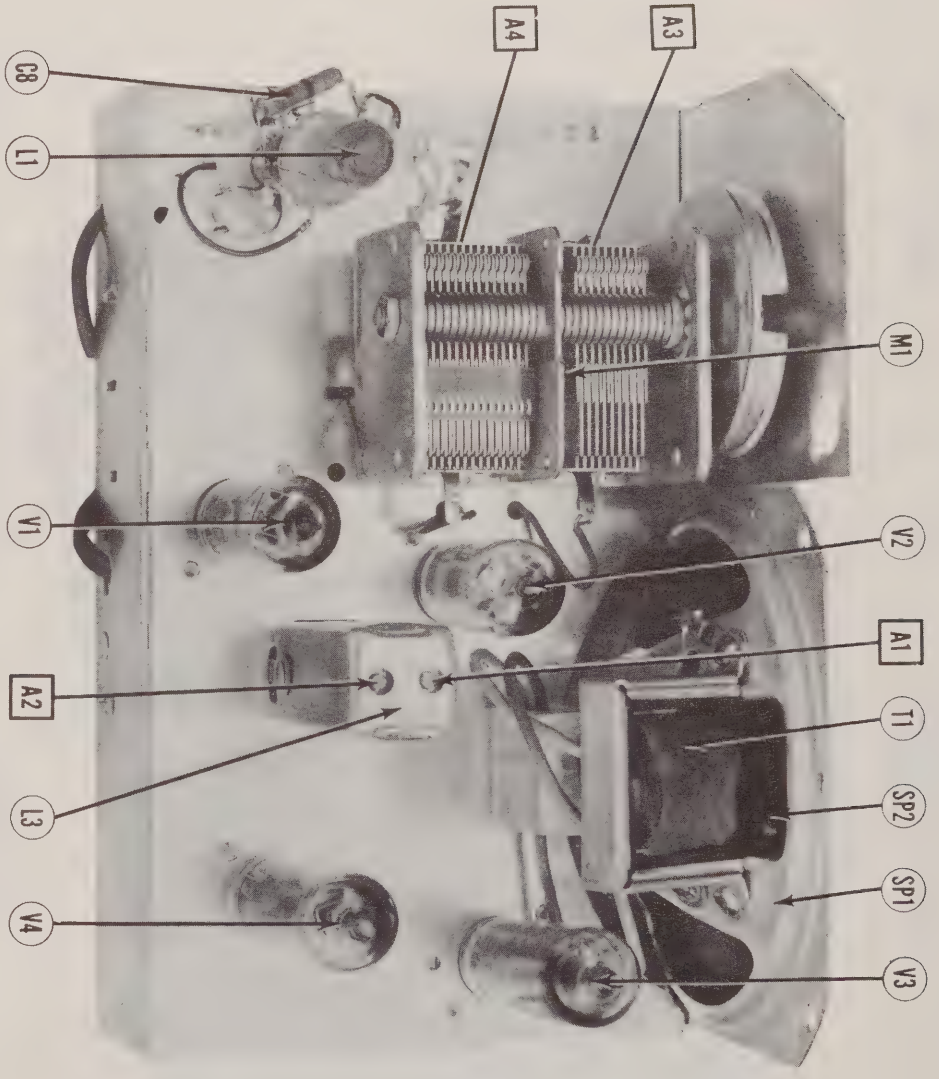
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JEWEL PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½		BTS-22K	Osc. Grid
R3	4.7 Meg.	½		BTS-4.7 Meg.	AVC Network
R4	10 Meg.	½		BTS-10 Meg.	AF Amp. Grid
R5	470KΩ	½		BTS-470K	AF Amp. Plate
R6	330KΩ	½		BTS-330K	Output Grid
R7	1500Ω	1		BW-1-1500	Filter
R8	24Ω	½			Rect. Ballast
R9	25Ω	2			Filament Dropping

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: JEWEL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2900Ω	4Ω	200Ω	.6Ω	Part of SP1	A-3332	A-3025 ①	RO-2 ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			JEWEL PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113		
SP1	PM	4Ω	80-16	MOD.P4-X	4A07 ②	② Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

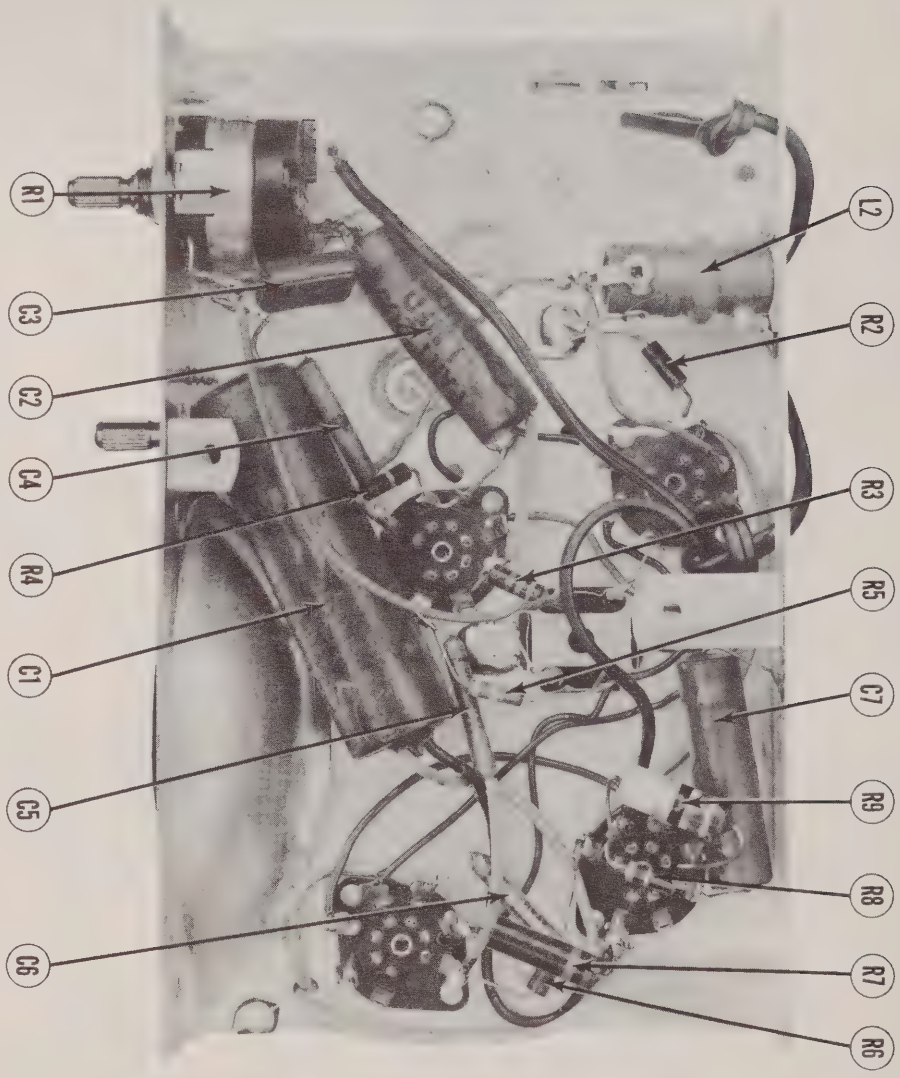
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	JEWEL PART No.	MEISSNER PART No.	
L1	Ant. Coil	70Ω	2.8Ω		14-1071	
L2	Osc. Coil	.4Ω	6Ω		14-1073	
L3	IF Coil	18Ω	18Ω	61-14	16-6758	

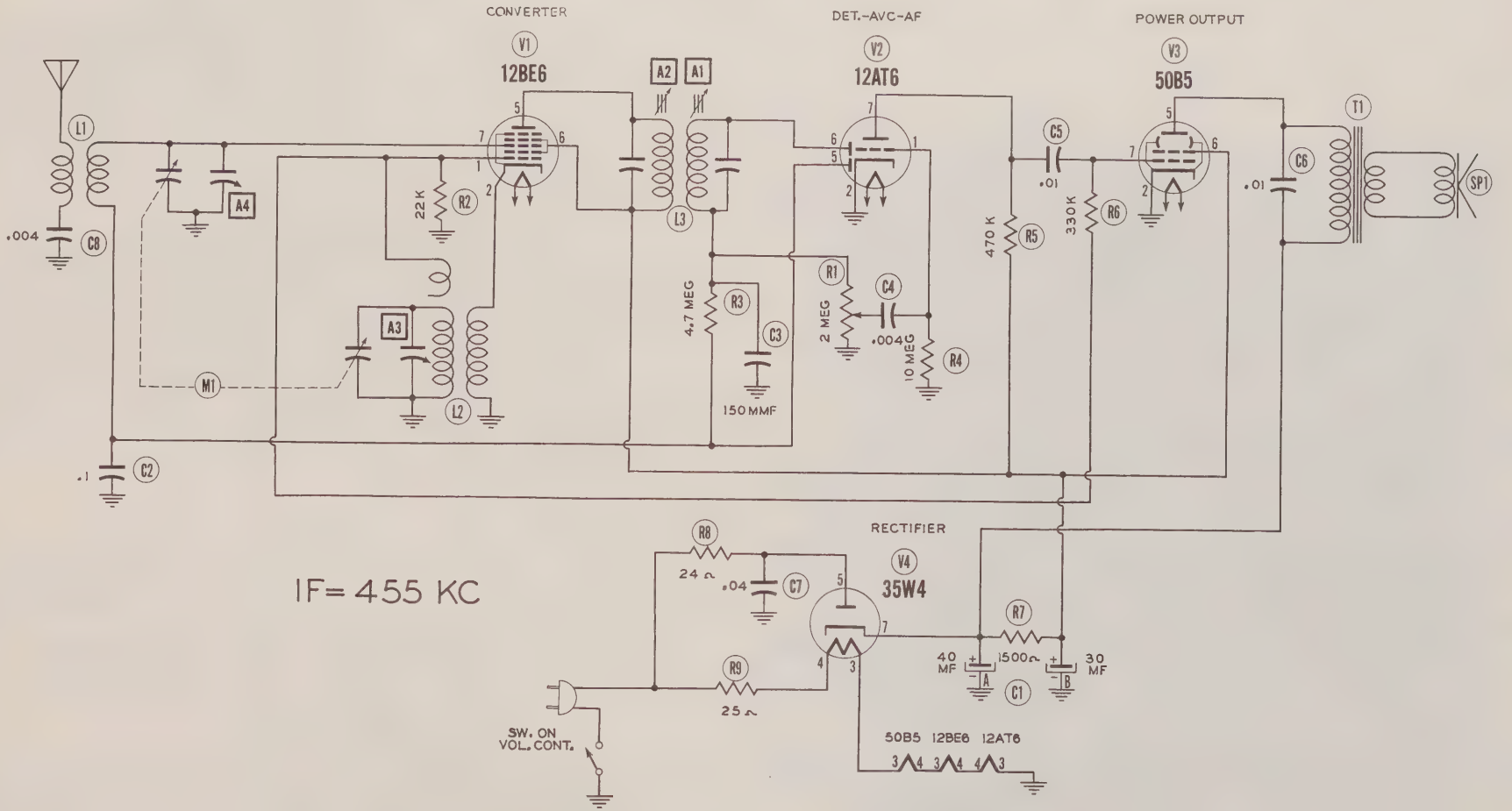
MISCELLANEOUS

ITEM No.	PART NAME	JEWEL PART No.	NOTES
M1	2 Gang Var. Cap.		(32-499MMF, 30-233MMF)

CHASSIS—BOTTOM VIEW



JEWEL MODEL 955



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-8.5VDC	0V.	26VAC	13VAC	115VDC	115VDC	-.4VDC
V 2	12AT6	-.6VDC	0V.	0V.	13VAC	-.4VDC	-.4VDC	43VDC
V 3	50B5	-3VDC	0V.	75VAC	26VAC	125VDC	115VDC	-3VDC
V 4	35W4	-4.3VDC	117VAC	75VAC	112VAC	115VAC	105VAC	130VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.4Ω	26Ω	13Ω	†1.5KΩ	†1.5KΩ	6.7 Meg.
V 2	12AT6	10 Meg.	0Ω	0Ω	13Ω	6.7 Meg.	2 Meg.	†470KΩ
V 3	50B5	350KΩ	0Ω	75Ω	26Ω	†200Ω	†1.5KΩ	350KΩ
V 4	35W4	22KΩ	130Ω	75Ω	110Ω	150Ω	100Ω	150KΩ

† MEASURED FROM PIN 7 OF V4.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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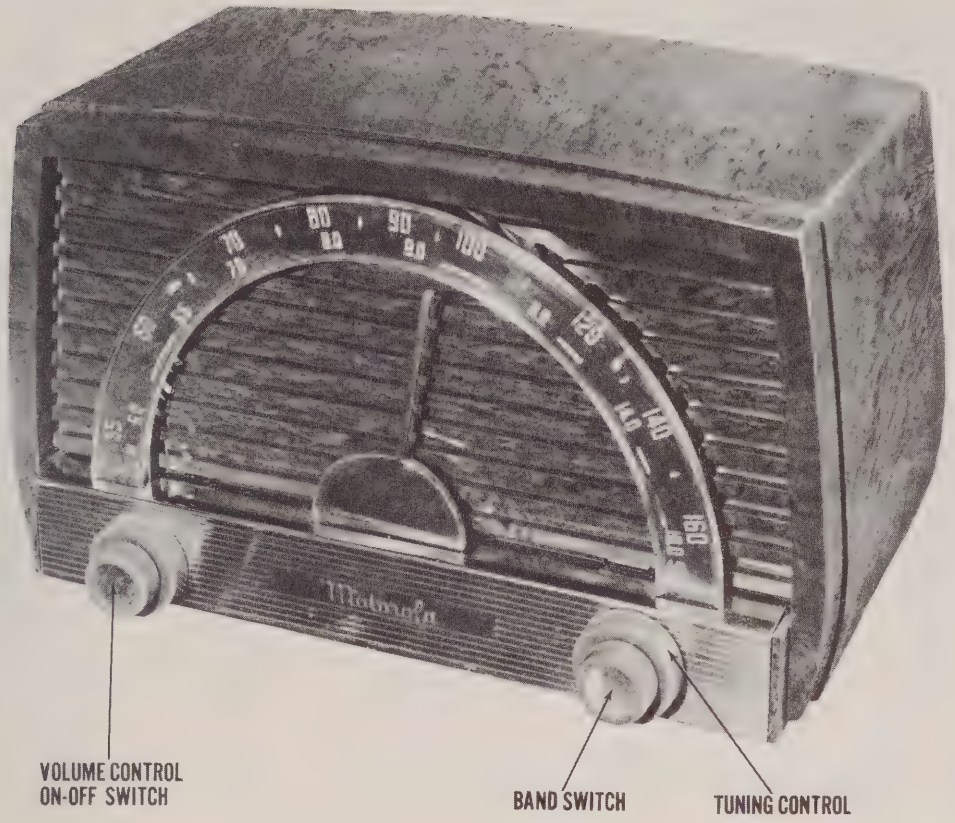
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA
MODELS 59X21U, 59X221U (Ch. HS-192)

MOTOROLA
MODELS 59X21U, 59X221U (Ch. HS-192)



MOTOROLA
MODELS 59X21U, 59X221U (Ch. HS-192)

MOTOROLA MODEL 59X21U

TRADE NAME	Motorola, Models 59X21U, 59X22IU (Ch. HS-192)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 DET-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.25 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC
SHORT WAVE	5.85-18.1MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	AM (CCW)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	400Ω carbon res.	High side thru 400Ω to "SW" antenna terminal. Low side to B-.	18.1MC	SW (CW)	"	"	A5, A6	Adjust for maximum output.
3.		Loop	1620KC	BC (CCW)	"	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		Loop	1400KC	"	Tune for max. output.	"	A8	"

L. F. [illegible] INSHIP
3069 [illegible] ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

MOTOROLA
MODEL 59X21U

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	DET.-AVC-AF	12AT6	12AT6	7BT	
V4	Power Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150	23K690671	E58C1			TA-304	Filter-Red
B	20	150						Filter-Blue
C	20	150						Filter-Orange
C2	50	500	21K77373	1468-00005	D6-500	GP1K-50	1FM-45	Ant. Isolation
C3	775	500	21A690643					Fixed Padder
C4	50	300	21K77373	1468-00005	D6 500	GP1K-50	1FM-45	Osc. Grid Cap.
C5	.1	400	8S9807	P488-1			TM-1	RF Bypass
C6	.05	200	8S9821	P288-05			TM-15	AVC Filter
C7A	220		21B482847	GP220M	D6-221	GP2K-220	34C3	Diode RF Filter
B	2000			GP2000M	D6-202	GP2M-002		Audio Coupling
C	220			GP220M	D6-221	GP2K-220		AF Amp. Plate Bypass
D	5000			GP5000M	D6-502	811-005		Audio Coupling
C8	.25	50	8A470504	P488-25			TC-2	Tone Compensation
C9	.02	400	8S9802	P488-02			TM-12	Output Plate Bypass
C10	.05	400	8S9816	P488-05			TM-15	Line Filter
C11	.15	200	8A72686	P288-15			72P52	Line Isolation-See Note

Note. Not used in all models.

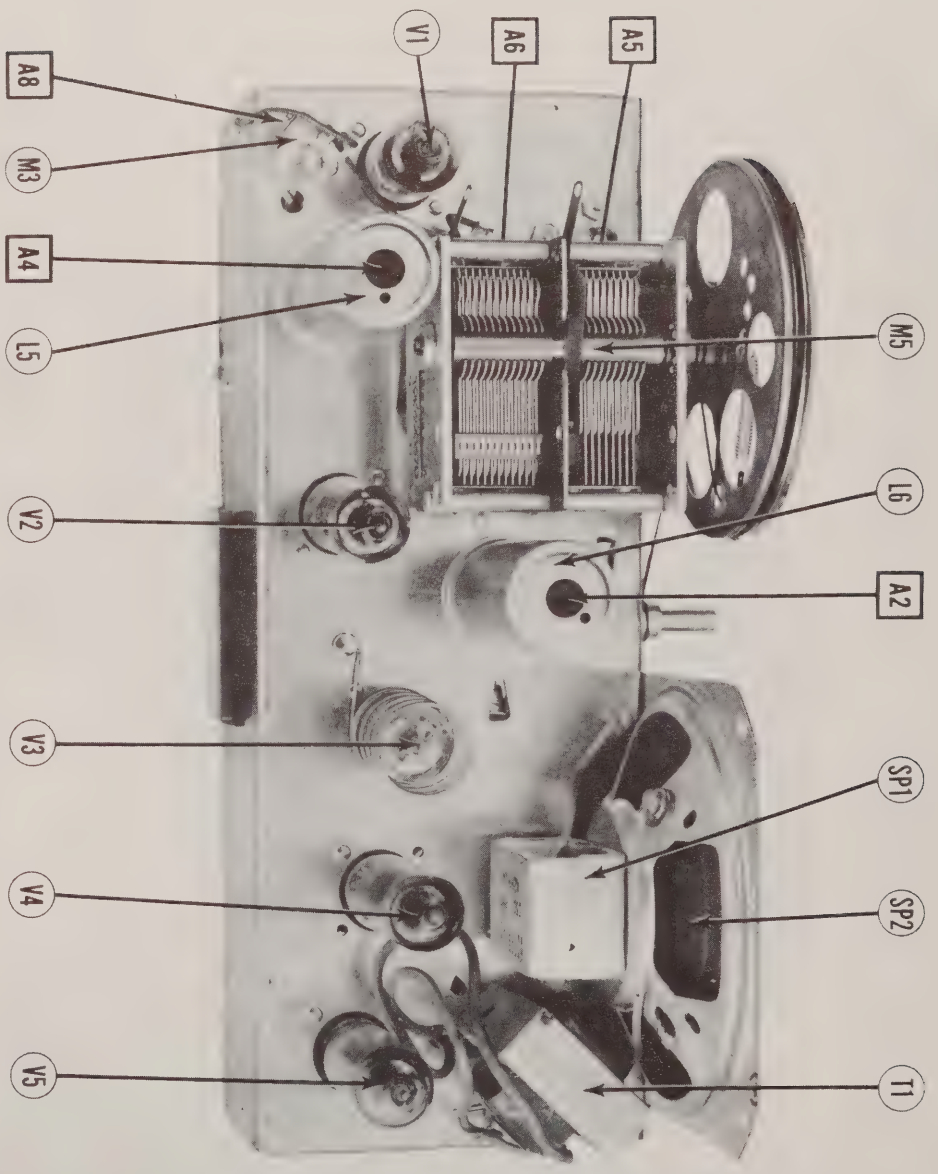
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1 Meg.	½	18A70032	Q13-137	AM-63-Z	BSK-70-S	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R2	100KΩ	½	6R6075	BTS-100K	Conv. Grid
R3	47Ω	½	6R2108		Parasitic Supp.
R4	22KΩ	½	6R6028	BTS-22K	Osc. Grid
R5	100Ω	½	6R6326	BW-½-100	IF Cathode
R6	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	AVC Network
R7	10 Meg.	½	6R2109	BTS-10 Meg.	AF Amp. Grid
R8	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R9	100Ω	½	6R6326	BW-½-100	AF Amp. Cathode
R10	1500Ω	½	6R6038	BTS-1500	Tone Compensation
R11	1500Ω	½	6R6038	BTS-1500	Tone Compensation
R12	470KΩ	½	6R6032	BTS-470K	Output Grid
R13	150Ω	½	6R3992	BW-½-150	Output Cathode
R14	220Ω	½	6R3933	BW-½-220	Filter
R15	1000Ω	1	6R3953	BW-1-1000	Filter
R16	27Ω	½	6R5683		Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.6KΩ	3.1Ω	175Ω	.3Ω	25K471947	A-3332 *	A-3025 *	RO-2 *	* Use mounting holes provided.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	50C478138	ST-113 MOD. P4-X	4A07	
	PM	3.1Ω				
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

R F COILS

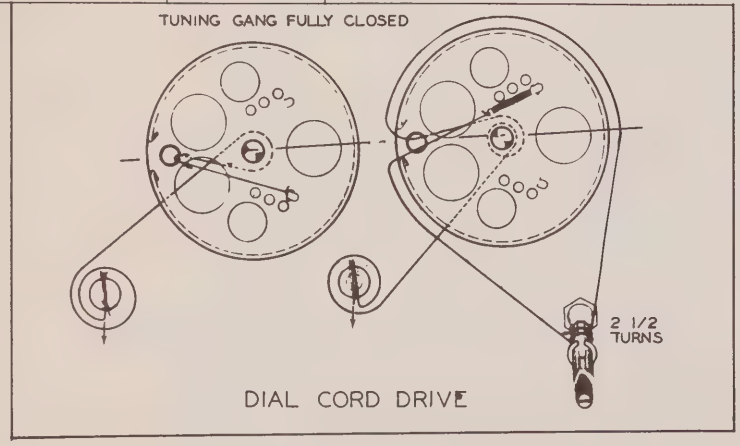
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.
L1	Loop Ant.	3.1Ω		24K690656	
L2	SW Ant. Coil	0Ω	0Ω	24B690641	
L3	BC Osc. Coil	1Ω	7.2Ω	24A690652	14-1073
L4	SW Osc. Coil	0Ω		24B690651	
L5	1st IF	14Ω	14Ω	24B482863	16-6678
L6	2nd IF	14Ω	14Ω	24B482865	16-6678

DIAL LIGHTS

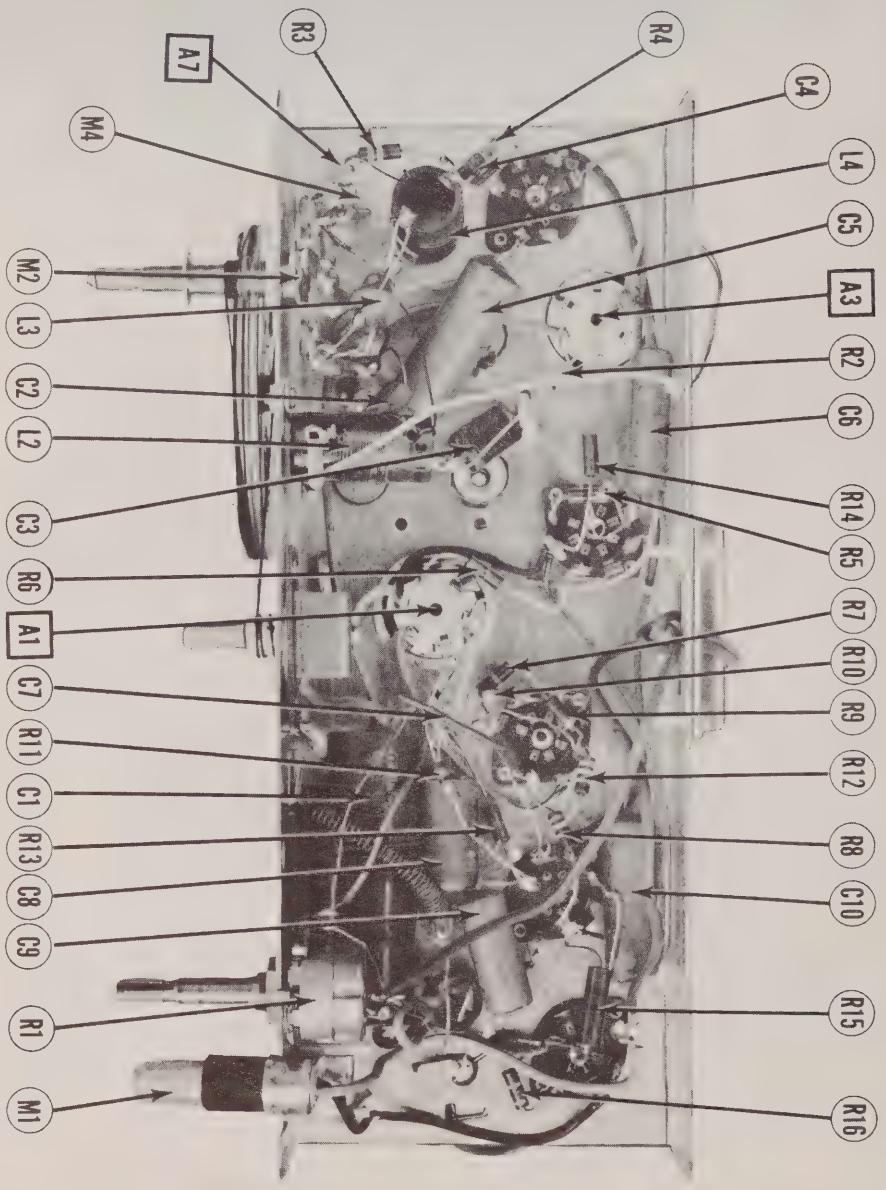
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M1	Bayonet	6-8	.15	Brown	65X11854		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Switch	40K690672	Band
M3	Trimmer	20K690655	BC Ant. Adj. (A8)
M4	Trimmer	20A680362	BC Osc. Adj. (A7)
M5	2 Gang Var. Cap.	1X690682	(22-573MMF 18-301MMF)
	Dial Pointer	52K690744	
	Dial Scale	34K690663	
	Cabinet	16E690504	Model 59X21U
	Cabinet	16K690659	Model 59X22IU



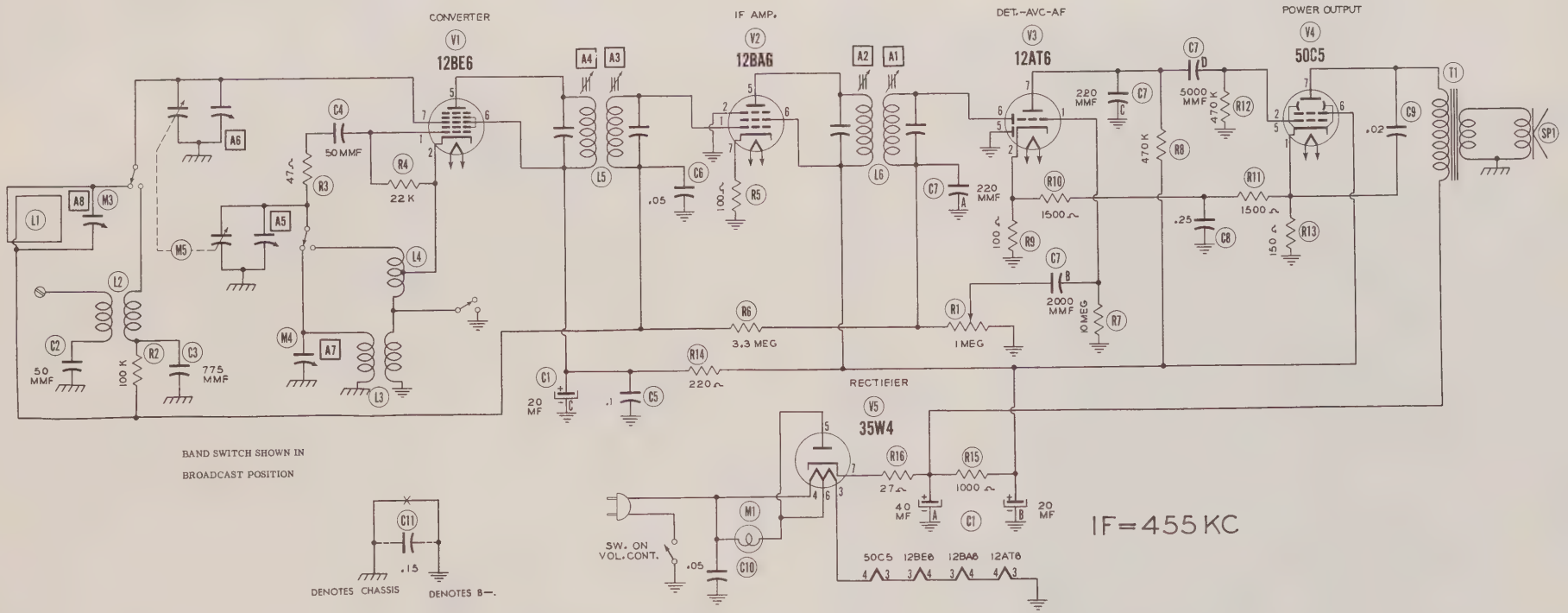
CHASSIS—BOTTOM VIEW



MOTOROLA MODEL 59X21U

SET 98 FOLDER 6

MOTOROLA MODEL 59X21U



BAND SWITCH SHOWN IN BROADCAST POSITION

DENOTES CHASSIS

DENOTES B—.

IF=455 KC

ALL MEASUREMENTS TAKEN IN "BROADCAST" POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-8.2VDC	0V.	38VAC	25VAC	95VDC	95VDC	-.1VDC
V 2	12BA6	-.1VDC	0V.	25VAC	13VAC	98VDC	98VDC	1.2VDC
V 3	12AT6	-.3VDC	.2VDC	0V.	13VAC	0V.	-.8VDC	45VDC
V 4	50C5	6.5VDC	.1VDC	38VAC	86VAC	.1VDC	98VAC	105VDC
V 5	35W4	115VDC	0V.	88VAC	118VAC	112VAC	112VAC	115VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1Ω	38Ω	25Ω	†1.2KΩ	†1.2KΩ	4.2 Meg.
V 2	12BA6	4.2 Meg.	0Ω	25Ω	13Ω	†1000Ω	†1000Ω	100Ω
V 3	12AT6	10 Meg.	100Ω	0Ω	13Ω	0Ω	1 Meg.	†470KΩ
V 4	50C5	150Ω	470KΩ	38Ω	88Ω	470KΩ	†1000Ω	†200Ω
V 5	35W4	65KΩ	Inf.	88Ω	117Ω	112Ω	115Ω	65KΩ

† MEASURED FROM PIN 7 OF V5.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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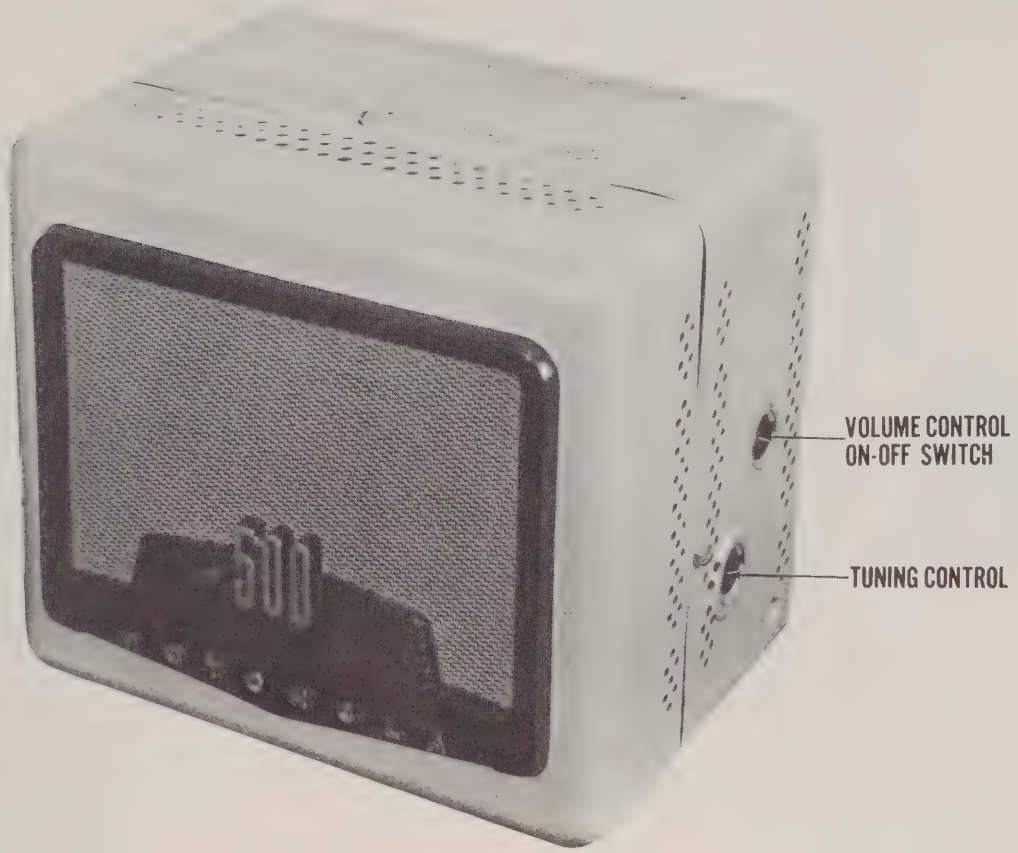
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



MOTOROLA
MODEL 500

MOTOROLA
MODEL 500

MOTOROLA MODEL 500

TRADE NAME	Motorola, Model 500
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET	Battery Operated Universal Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 DET-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 5.9 Amp. at 6 Volts DC
TUNING RANGE—BROADCAST	535-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis.	455KC	Tuning cores fully out	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	See Fig 1.	High side thru dummy to antenna receptacle. Low side to chassis.	1610KC	Tuning cores fully out, cores should project 1 1/8 ins. out of the can.	"	A5, A6, A7	"
3.	See Fig 1	"	1425KC	Set carriage plate 1 1/16 ins. from coil shield plate.	"	A8, A9,	"

AFTER SET IS INSTALLED FULLY EXTEND ANTENNA AND TUNE IN A WEAK STATION NEAR 1400KC. ADJUST A7 FOR MAXIMUM VOLUME.

FIG. 1

PROPERTY OF
L. F. ELA KENSHIP
3924 M[illegible]E ST.
DENVER, COLORADO

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PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL 500

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	DET.-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	15	350	23A485677	AFH32H4A			EL-153	■ Filter
B	10	350						▲ Filter
C	20	25						Output Plate Bypass
C2	90		21A591682					Fixed Trimmer
C3	.006	100	8C4529	P488-006	D6-562	811-005	TM-26	Ant. Coupling
C4	.05	100	8R13514	P288-05			TM-15	AVC Filter
C5	5		21K70720	GP5K	D2-4.7	NPOK-5	MS-55	RF Coupling
C6	50	300	21R6513	1468-00005	D6-500	GP1K-50	1FM-45	Osc. Grid Cap.
C7	.1	400	8R13166	P488-1			TM-1	Decoupling
C8	100		21B77562	GP100M	D6-101	GP1K-100	1FM-31	Diode RF Filter
C9	100		21B77562	GP100M	D6-101	GP1K-100	1FM-31	Diode RF Filter
C10	.05	100	8R13514	P288-05			TM-15	Audio Coupling
C11	.03	400	8R7191	P488-03			TM-13	Audio Coupling
C12	1000		21K478410	GP1000M	D6-102	GP2L-001	1FM-21	Output Grid Bypass
C13	.01	400	8R23690	P488-01	D6-103	821-01	TM-11	Output Plate Bypass
C14	.02	1000	8R490449	P1088-02			MB-12	Buffer
C15	.5	100	8K17028	P288-5			68P20	Hash Filter
C16	.5	100	8K17028	P288-5			68P20	Hash Filter
C17	5		21K70720	GP5K	D2-4.7	NPOK-5	MS-55	IF Coupling

CONTROLS

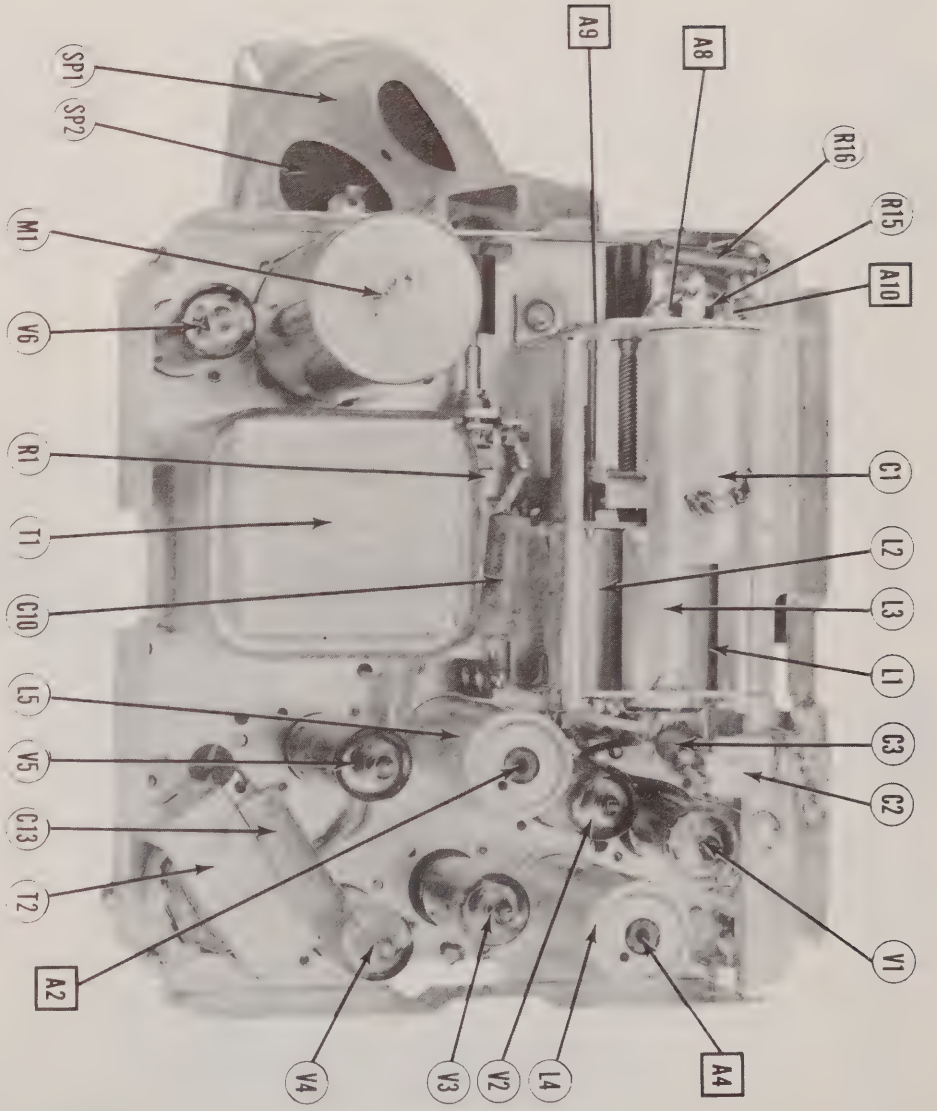
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1	500KΩ	½	1A472531				Volume control and switch

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R2	470KΩ	½	6R6032	BTS-470K	RF Grid
R3	270Ω	½	6R6432	BW-½-270	RF Cathode
R4	100KΩ	½	6R6075	BTS-100K	Conv. Grid
R5	47KΩ	½	6R6056	BTS-47K	Osc. Grid
R6	330Ω	½		BW-½-330	IF Cathode-See Note
R7	6800Ω	1	6R6287	BTA-6800	Voltage Dropping
R8	1 Meg.	½	6R6004	BTS-1 Meg.	AVC Network
R9	1 Meg.	½	6R6004	BTS-1 Meg.	Diode Load
R10	47KΩ	½	6R6056	BTS-47K	Diode Filter
R11	2700Ω	½	6R5577	BTS-2700	AF Amp. Cathode
R12	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	AF Amp. Grid
R13	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R14	220KΩ	½	6R6015	BTS-220K	Output Grid
R15	270Ω	1	6R6336	BW-1-270	Output Cathode
R16	1000Ω	1	6R6184	BW-1-1000	Filter
R17	56Ω	½	6R5614	BW-½-56	Hash Suppression
R18	56Ω	½	6R5614	BW-½-56	Hash Suppression

Note. Some models use 470Ω resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6VDC @ 3.4A	500VCT @ .060A			25B472533	P-4062 ①	P-4071 ①	VT-3 ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.5KΩ	3.6Ω	500Ω	.4Ω	25B70171	A-3877	A-2930	RO-8	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	50K591140	ST-803 MOD. P525-V	52A1	
	PM	3.6Ω				
	CONE DIA.	V. C. DIA.				
SP2	5"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L1	Ant. Coil	16.8Ω		24B591664		Specify color of dot when ordering.
L2	RF Coil	16.8Ω		24B591664		Specify color of dot when ordering.
L3	Osc. Coil	.9Ω	3Ω	24B592153		Specify color of dot when ordering.
L4	1st IF	14Ω	14Ω	24B485670	16-6678	
L5	2nd IF	12Ω	12Ω	24B485670	16-6678	
L6	Hash Choke	0Ω				
L7	Hash Choke	0Ω				
L8	Fil. Choke	0Ω		24A472535		

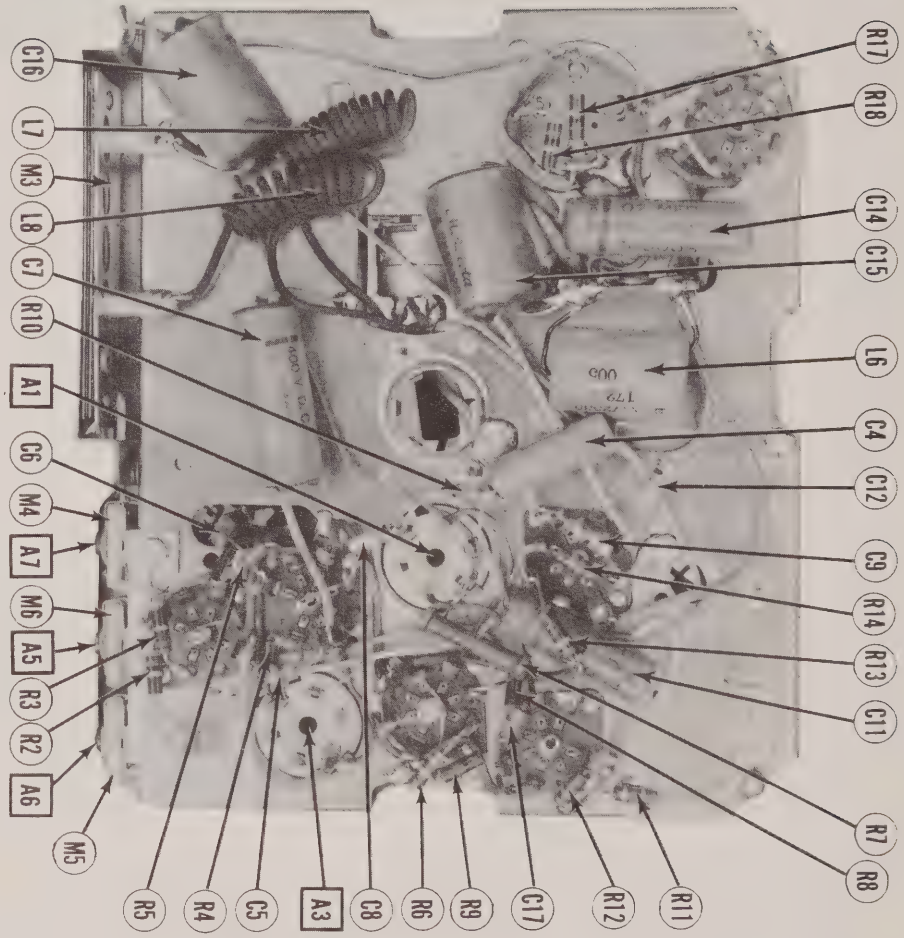
VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				MOTOROLA PART No.	AEROVOX PART No.	RADIART PART No.	
M1	Int.	6V	115 ∿	48B3333	A-200	5342	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Fuse	65A10266	Type 3AG 10 Amp.
M3	Spark Plate	1X592328	
M4	Trimmer Strip	20K592078	Ant. Adj. (A7)
M5			RF Adj. (A6)
M6			Osc. Adj. (A5)

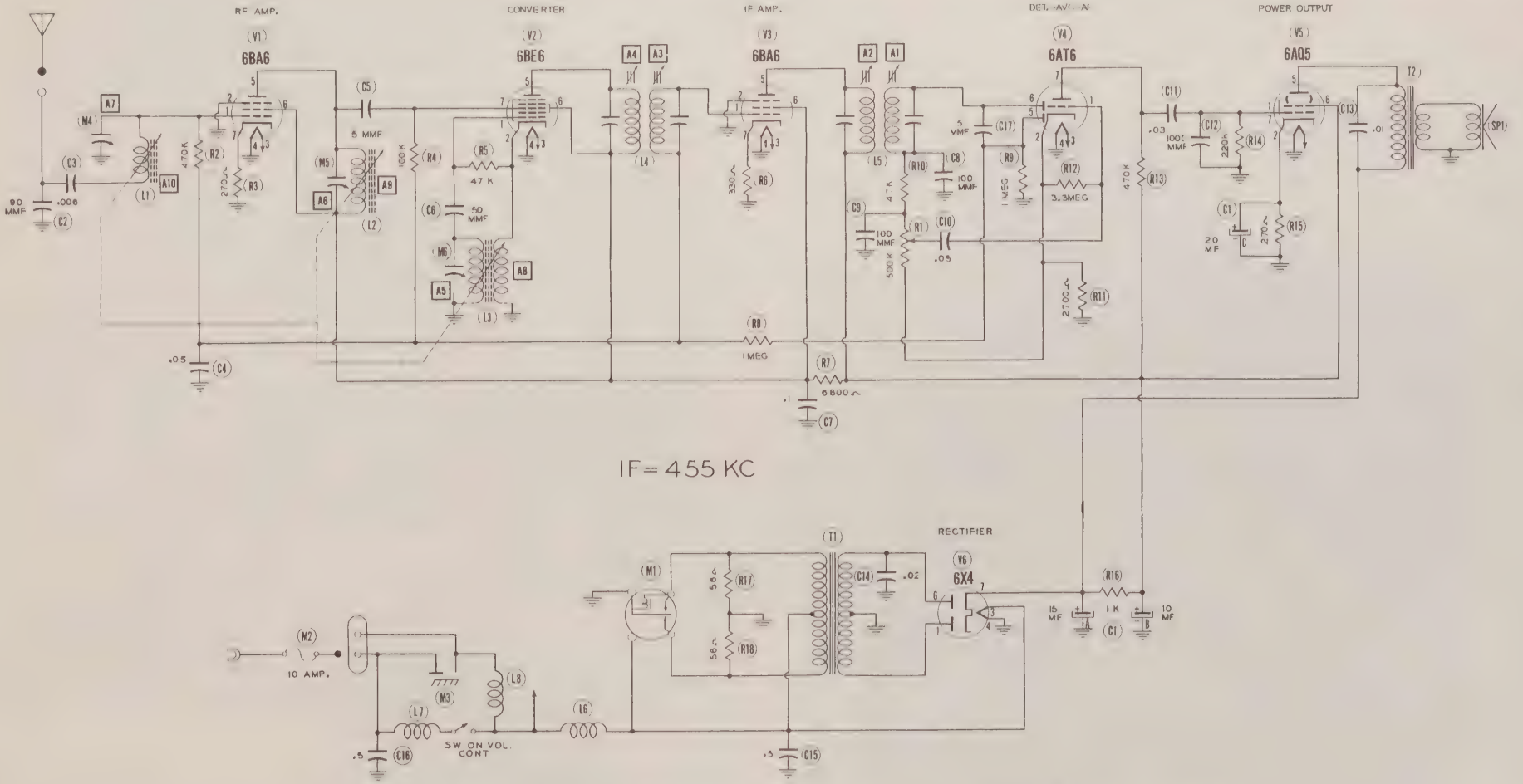
CHASSIS—BOTTOM VIEW



SET 98 FOLDER 7

MOTOROLA MODEL 500

MOTOROLA MODEL 500



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	-.1VDC	0V.	6.3VDC	0V.	95VDC	95VDC	1.7VDC
V 2	6BE6	§-3.5VDC	0V.	6.3VDC	0V.	95VDC	95VDC	-.3VDC
V 3	6BA6	-.4VDC	0V.	6.3VDC	0V.	200VDC	95VDC	1.8VDC
V 4	6AT6	-.1VDC	.6VDC	6.3VDC	0V.	-.1VDC	.1VDC	44VDC
V 5	6AQ5	0V.	9.5VDC	0V.	6.3VDC	210VDC	200VDC	0V.
V 6	6X4	285VAC	0V.	6.3VDC	0V.	0V.	285VDC	225VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.4 Meg.	0Ω	.4Ω	0Ω	†7.8KΩ	†7.8KΩ	270Ω
V 2	6BE6	47KΩ	.9Ω	.4Ω	0Ω	†7.8KΩ	†7.8KΩ	2 Meg.
V 3	6BA6	2 Meg.	0Ω	.4Ω	0Ω	†1000Ω	†7.8KΩ	330Ω
V 4	6AT6	3.3 Meg.	2.7KΩ	.4Ω	0Ω	1 Meg.	547KΩ	†470KΩ
V 5	6AQ5	220KΩ	270Ω	0Ω	.4Ω	†500Ω	†1000Ω	220KΩ
V 6	6X4	400Ω	Inf.	.4Ω	0Ω	Inf.	400Ω	210KΩ

† MEASURED FROM PIN 7 OF V6.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

PACKARD-BELL MODELS
2001TV, 2002TV

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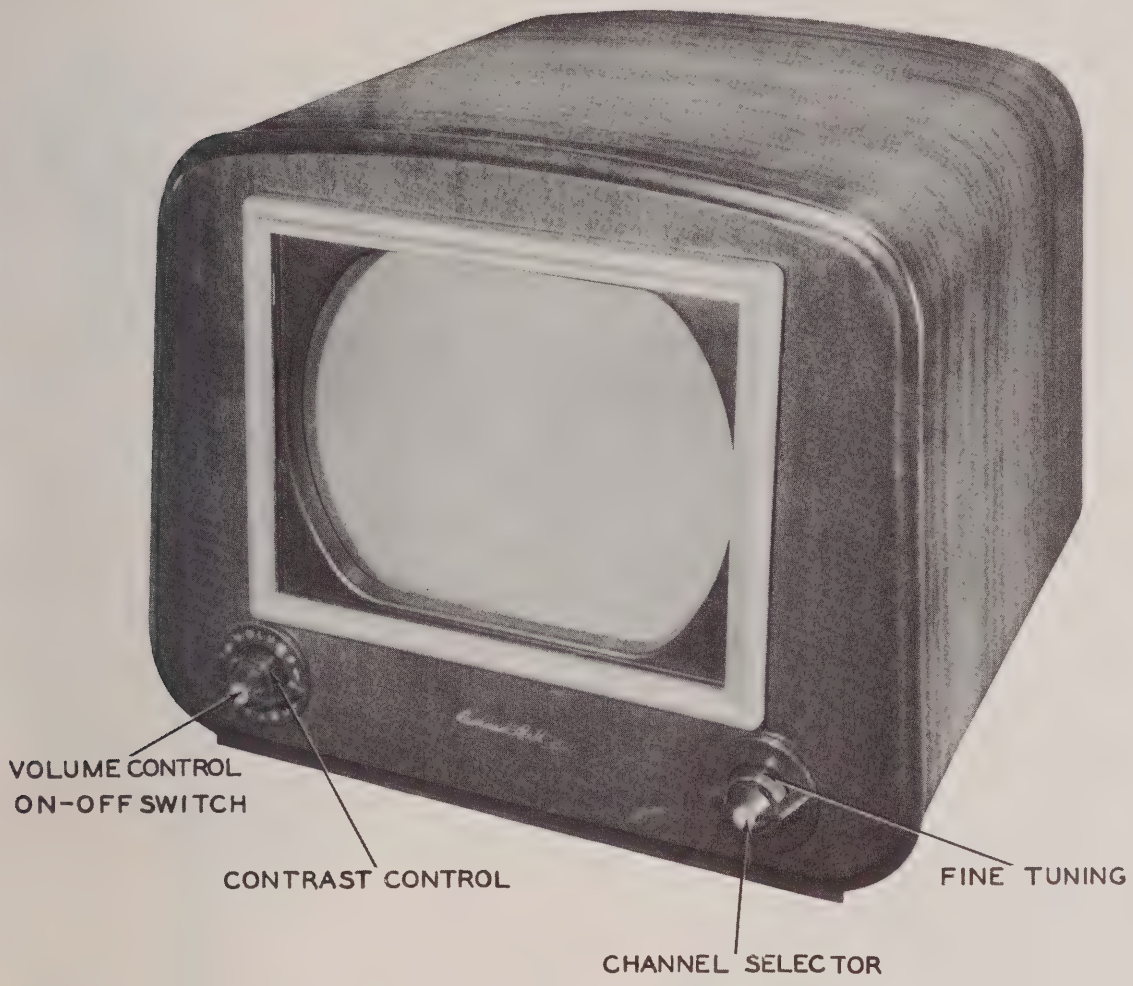

PACKARD-BELL
MODELS 2001TV, 2002TV

PACKARD-BELL MODEL 2001TV

TRADE NAME	Packard-Bell, Models 2001TV, 2002TV	
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, California	
TYPE SET	Television Receiver	
TUBES	Twenty	
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 1.6 Amp. at 117 Volts AC
TUNING RANGE—	Channels 2 thru 13	

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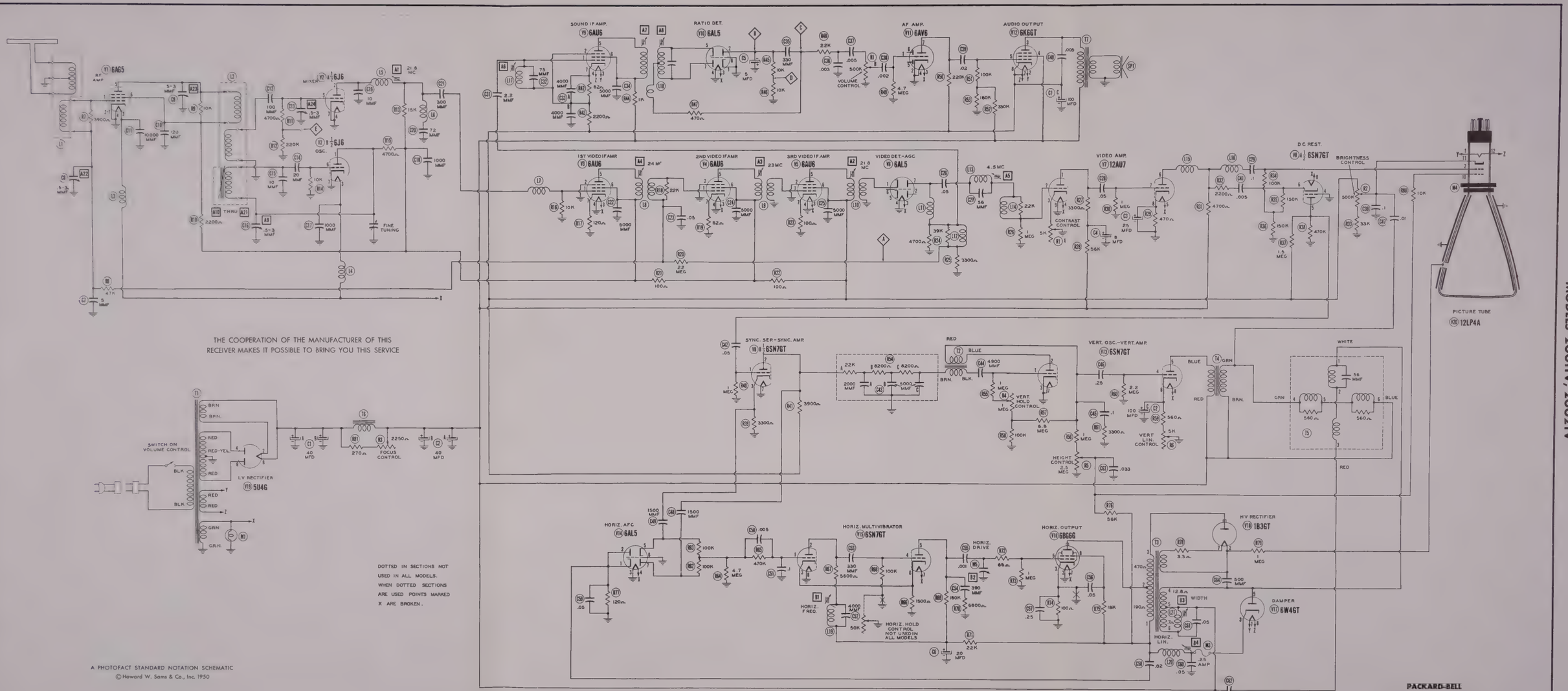
RF AMP. V1 6AG5
MIXER V2A 1/2 6J6
OSC. V2B 1/2 6J6
SOUND IF AMP. V9 6AU6
RATIO DET. V10 6AL5
AF AMP. V11 6AV6
AUDIO OUTPUT V12 6K6GT
1ST VIDEO IF AMP. V1 6AU6
2ND VIDEO IF AMP. V4 6AU6
3RD VIDEO IF AMP. V5 6AU6
VIDEO DET.-AGC V6 6AL5
VIDEO AMP. V7 12AU7
D.C. REST. V8 1/2 6SN7GT
BRIGHTNESS CONTROL
PICTURE TUBE V25 12LP4A
SYNC. SEP.-SYNC. AMP. V8 1/2 6SN7GT
VERT. OSC.-VERT. AMP. V13 6SN7GT
VERT. HOLD CONTROL
VERT. LIN. CONTROL
HEIGHT CONTROL
CONTRAST CONTROL
HORIZ. AFC V14 6AL5
HORIZ. MULTIVIBRATOR V15 6SN7GT
HORIZ. F REQ.
HORIZ. HOLD CONTROL NOT USED IN ALL MODELS
HORIZ. OUTPUT V16 6BG6G
HORIZ. DRIVE
H.V. RECTIFIER V18 1B3GT
DAMPER V17 6W4GT
WIDTH
HORIZ. LIN.
L.V. RECTIFIER V19 5U4G
SWITCH ON VOLUME CONTROL
FOCUS CONTROL
FINE TUNING
THRU
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DOTTED IN SECTIONS NOT USED IN ALL MODELS. WHEN DOTTED SECTIONS ARE USED POINTS MARKED X ARE BROKEN.
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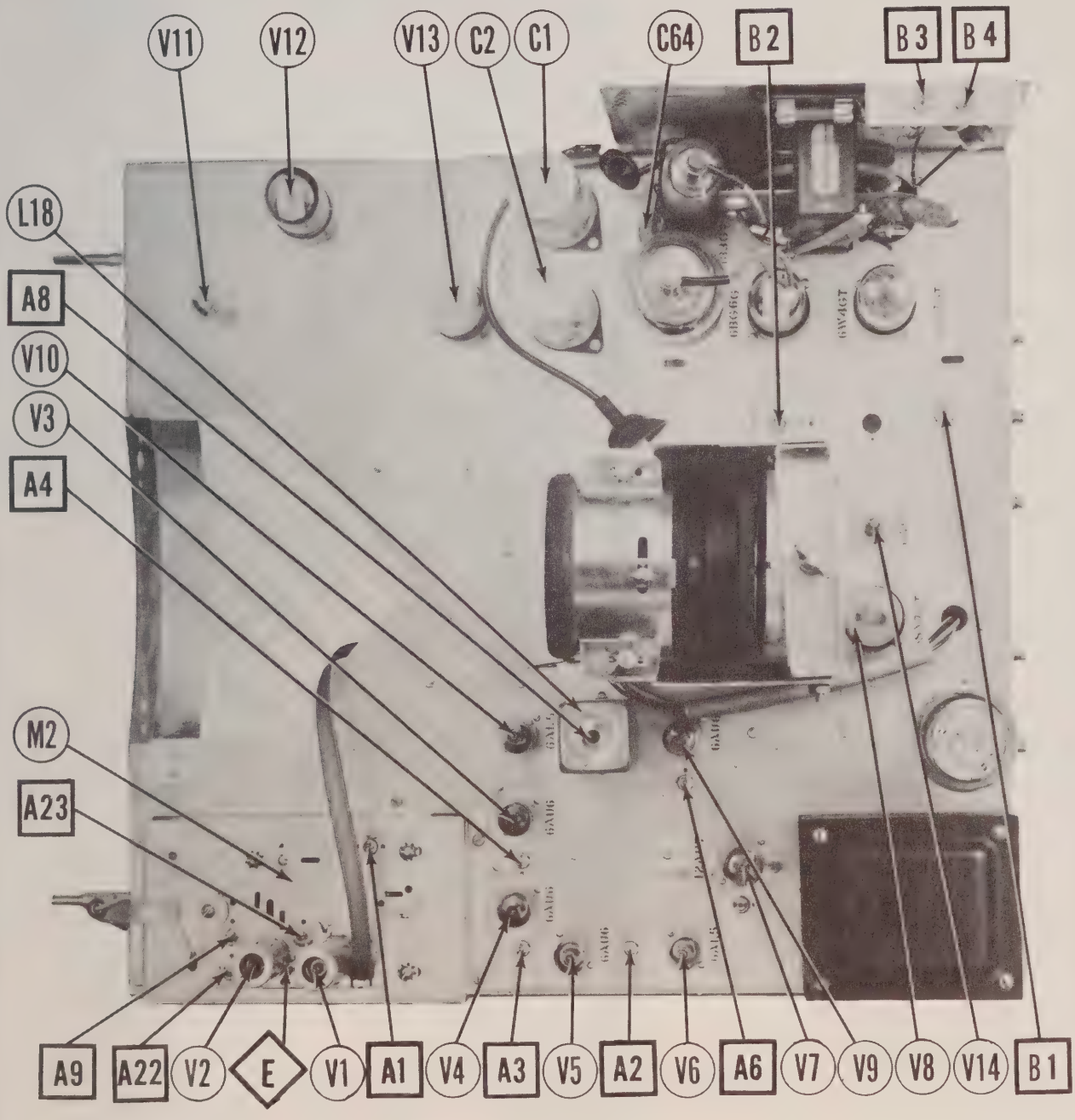
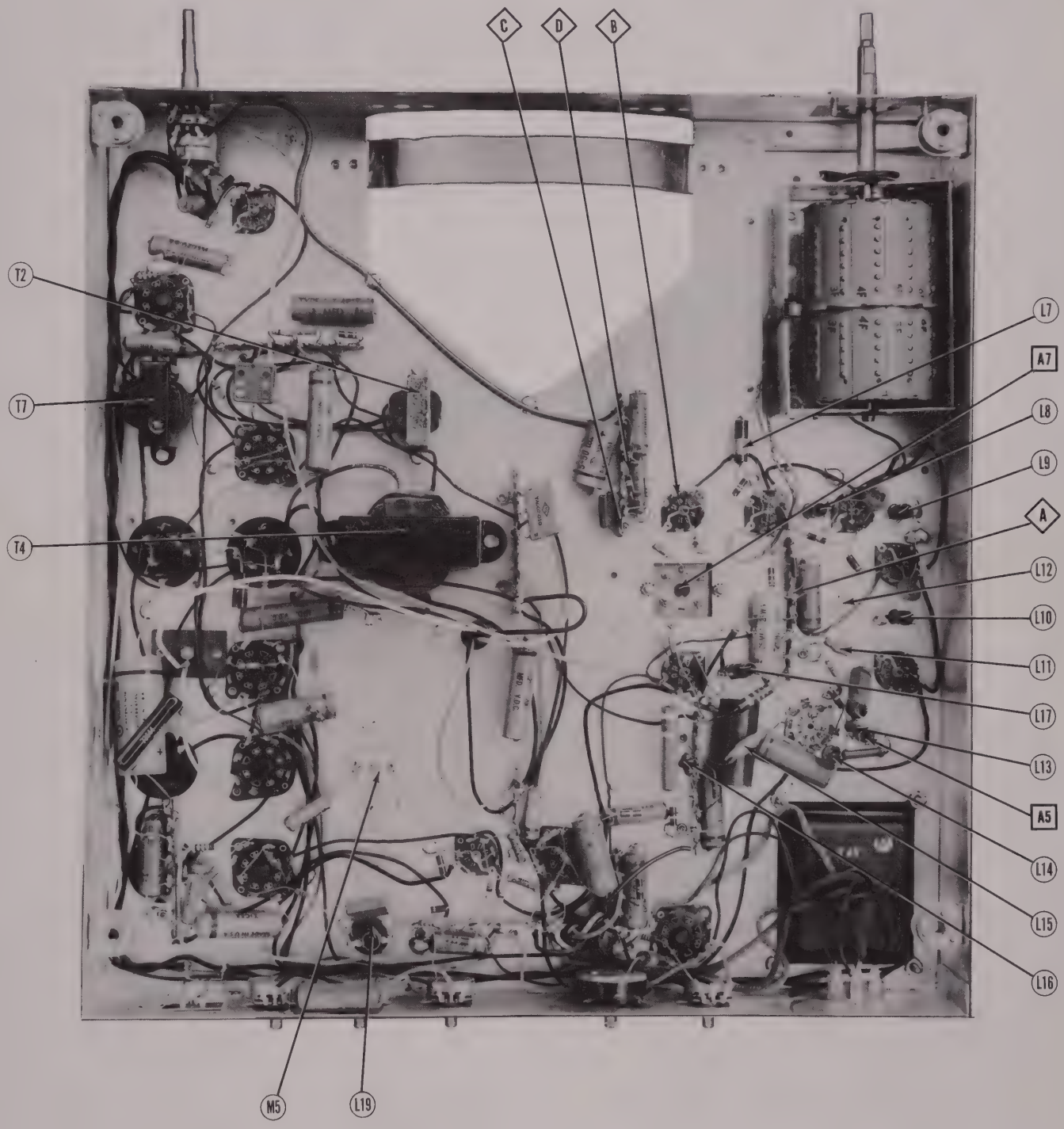
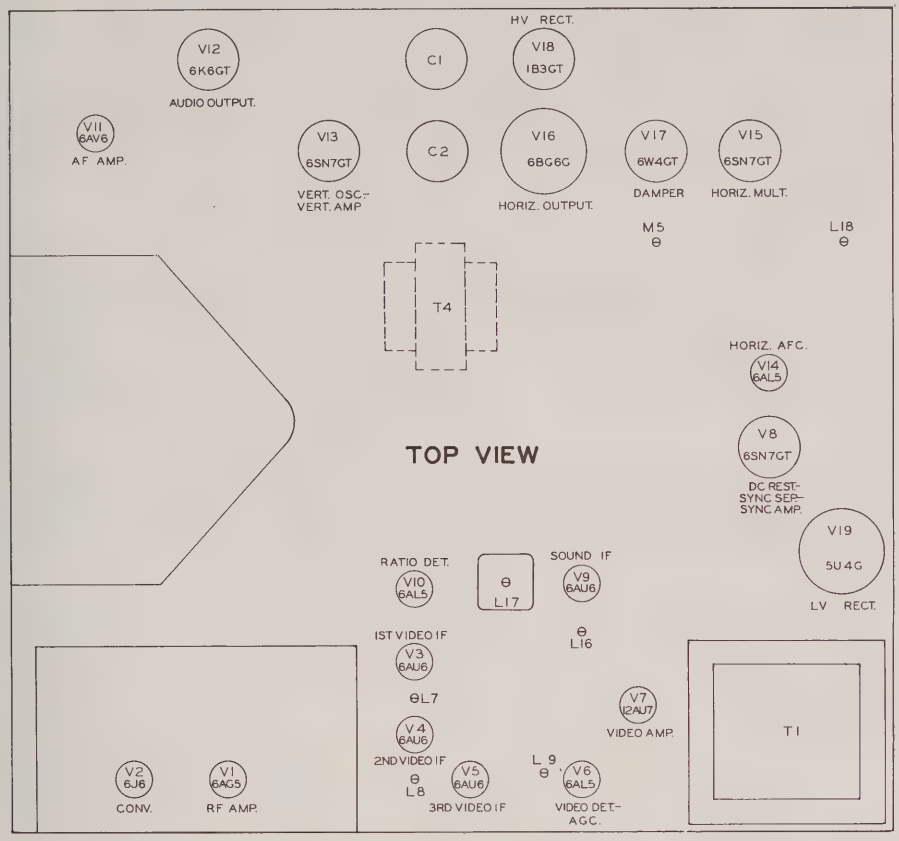
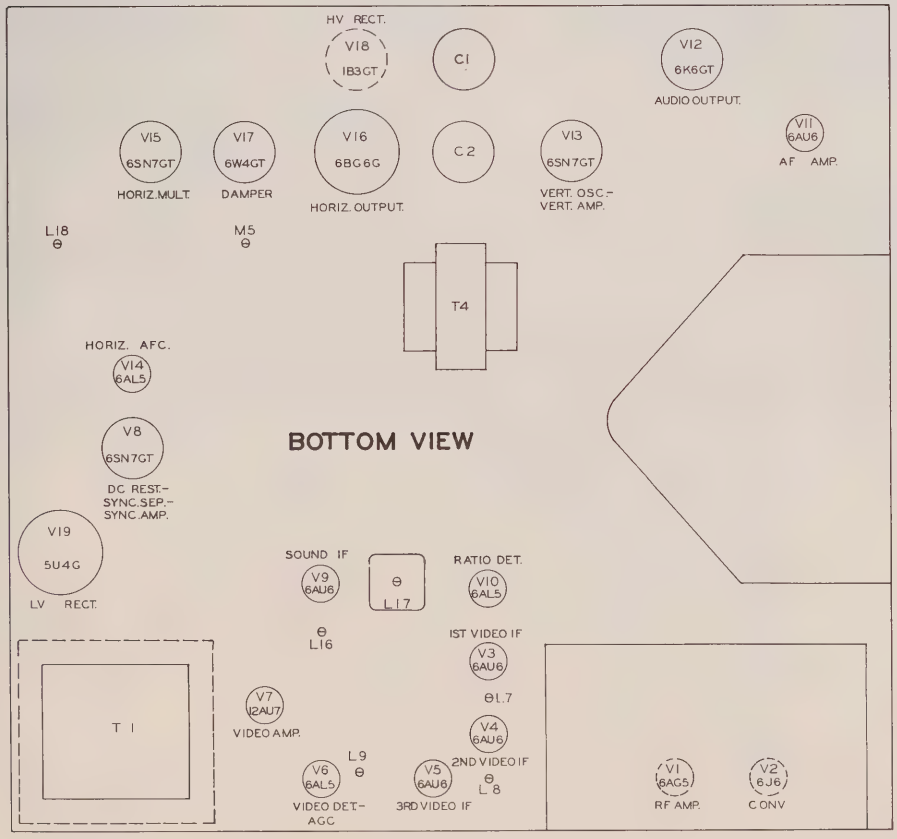


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube V15 from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed.
Attenuate the signal generator to maintain as low a reading as usable, (approximately 2 volts).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	21.8MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	Direct	"	23MC	"	"	A3	"
3.	Direct	"	24MC	"	"	A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to ungrounded tube shield floating over dummy mixer tube (V2). Low side to chassis.	24MC (10MC SWP)	21.25MC 25.75MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for optimum response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.05MFD	High side to pin 7 (plate) of 6AL5 (V6). Low side to chassis.	Not used	4.5MC (400 ∿ Mod.)	Any	Vert. Amp. thru detector probe to pin 2 (Grid) of picture tube. Low side to chassis.	A5	Detune A6. Adjust A5 for minimum 400 ∿ response on scope.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.05MFD	High side to pin 7 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (B). Common to chassis.	A6, A7	Adjust for maximum deflection.
7.	.05MFD	"	"	"	DC Probe to Point (C). Common to Point (D).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.05MFD	High side to pin 7 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (B). Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C5. Adjust for maximum amplitude and symmetry as per figure 2.
7.	.05MFD	"	"	"	"	"	A8	Reconnect capacitor C5. Adjust A8 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A9. It should be noted that is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A9 will not bring all channels within the range of the fine tuning control, it will be necessary to adjust the individual channel oscillator adjustment for each channel that is off frequency. The individual channel oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channels switch is turned to each channel.

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point (A). Low side to chassis.	A10	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A11	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A12	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A13	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A14	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A15	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A16	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A17	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A18	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A19	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A20	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A21	

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

The RF and mixer portion of this receiver has been pre-set at the factory and is very stable. Alignment of this portion should not be attempted unless it is definitely known to be out of alignment.

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to point (B). Low side to chassis.	A22, A23, A24	Adjust for response curve similar to figure 5 with markers above 80%.
10.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check for response curve similar to figure 5. If markers fall below 70% on any channel, make slight adjustment of A22, A23, and A24 with channel switch set for that channel. Recheck all channels, to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 195.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

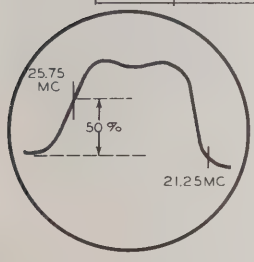


FIG.1

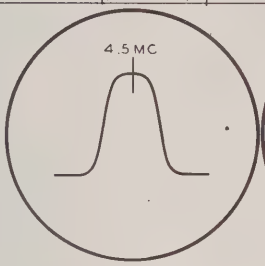


FIG. 2

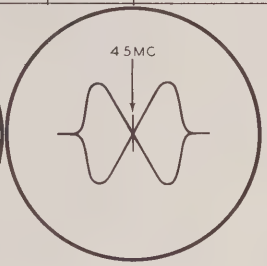


FIG. 3

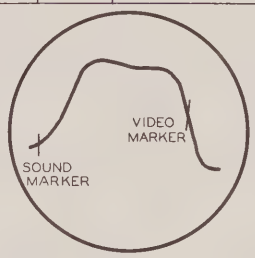


FIG. 4

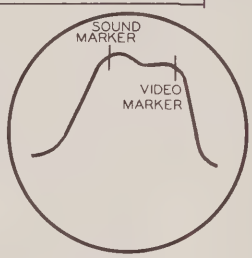
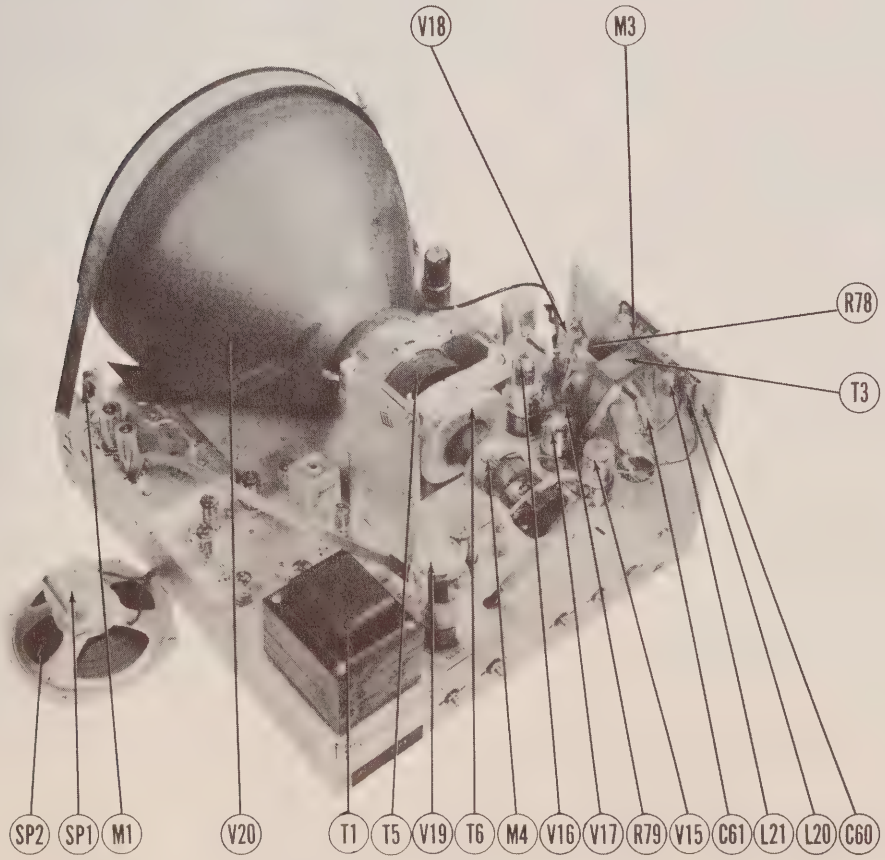


FIG.5



CHASSIS-TOP VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.4VDC	0V.	6.3VAC	0V.	115VDC	115VDC	0V.		
V 2	6J6	80VDC	90VDC	6.3VAC	0V.	-2.3VDC	§-5.9VDC	0V.		
V 3	6AU6	0V.	0V.	6.3VAC	0V.	150VDC	150VDC	1.2VDC		
V 4	6AU6	-.3VDC	0V.	6.3VAC	0V.	150VDC	150VDC	.6VDC		
V 5	6AU6	0V.	0V.	6.3VAC	0V.	155VDC	155VDC	1VDC		
V 6	6AL5	0V.	0V.	6.3VAC	0V.	0V.	0V.	-3.6VDC		
V 7	12AU7	190VDC	0V.	9.5VDC	6.3VAC	6.3VAC	300VDC	0V.	7.2VDC	0V.
V 8	6SN7GT	0V.	145VDC	6.3VDC	0V.	30VDC	2.7VDC	0V.	6.3VAC	
V 9	6AU6	#35VDC	#35VDC	#6.3VAC	#0V.	#195VDC	#195VDC	#40VDC		
V 10	6AL5	0V.	-.4VDC	6.3VAC	0V.	-.1VDC	0V.	-.1VDC		
V 11	6AV6	-.6VDC	0V.	6.3VAC	0V.	0V.	0V.	75VDC		
V 12	6K6GT	#-145VDC	#6.3VAC	#190VDC	#210VDC	#-13VDC	#-13VDC	#0V.	#0V.	
V 13	6SN7GT	12VDC 10VDC	55VDC	0V.	0V.	350VDC	9.5VDC 18VDC	0V.	6.3VAC	
V 14	6AL5	0V.	0V.	0V.	6.3VAC	9.2VDC	0V.	-5.5VDC		
V 15	6SN7GT	.6VDC	260VDC	11VDC	-4.3VDC	115VDC	11VDC	6.3VAC	0V.	
V 16	6BG6G	0V.	0V.	9VDC	.1VDC	-3.3VDC	0V.	6.3VAC	265VDC	TOP CAP *
V 17	6W4GT	0V.	0V.	450VDC	0V.	370VDC	0V.	#6.3VAC	#0V.	
V 18	1B3GT	* DO NOT MEASURE.								
V 19	5U4G	0V.	400VDC	0V.	370VAC	0V.	370VAC	0V.	400VDC	
V 20 V 21	12LP4A	#6.3VAC	1 VDC	PIN 10 440VDC	PIN 11 145VDC 11VDC	PIN 12 #0V.				

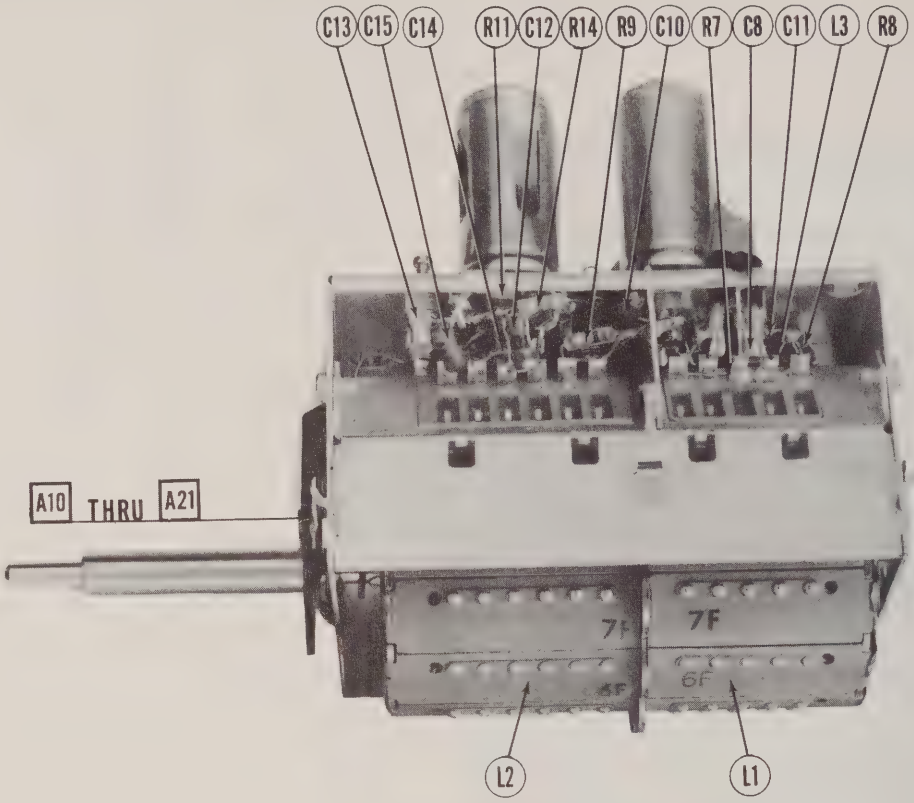
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
# MEASURED FROM PIN 8 OF V17.

RESISTANCE READINGS

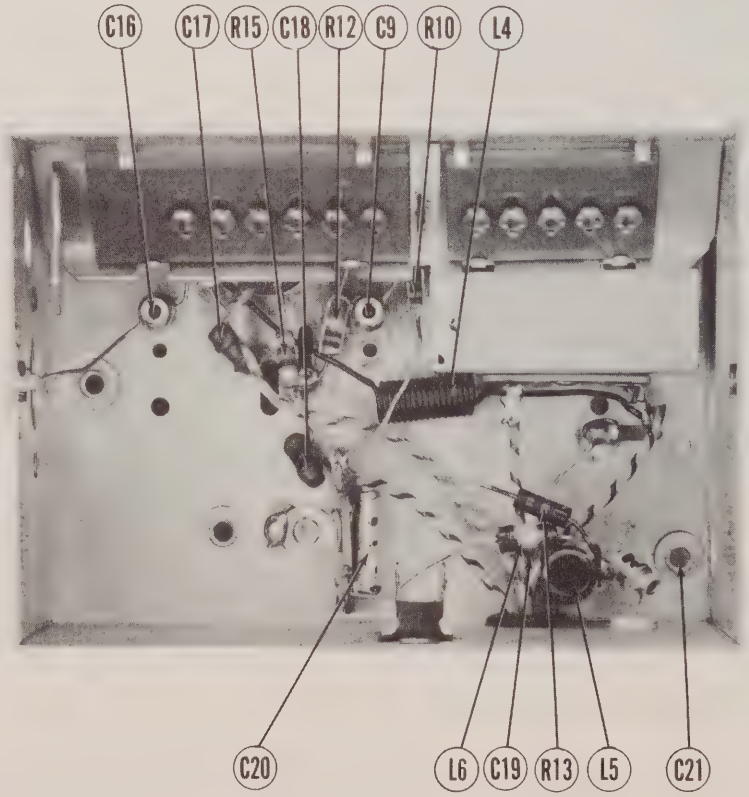
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	2.2 Meg.	0Ω	.1Ω	0Ω	#2.5KΩ	#2.4KΩ	0Ω		
V 2	6J6	#4.9KΩ	#15KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AU6	10KΩ	0Ω	.1Ω	0Ω	#200Ω	#200Ω	120Ω		
V 4	6AU6	2.2 Meg.	0Ω	.1Ω	0Ω	#100Ω	#100Ω	82Ω		
V 5	6AU6	.1Ω	0Ω	.1Ω	0Ω	#.1Ω	#0Ω	100Ω		
V 6	6AL5	.1Ω	Inf.	.1Ω	0Ω	Inf.	Inf.	2KΩ		
V 7	12AU7	† 60KΩ	1 Meg.	5KΩ	.1Ω	.1Ω	†4.8KΩ	1 Meg.	470Ω	0Ω
V 8	6SN7GT	1 Meg.	#4KΩ	3.3KΩ	0Ω	450KΩ	300KΩ	0Ω	.1Ω	
V 9	6AU6	#2.2KΩ	#2.2KΩ	#.1Ω	#0Ω	†1.1KΩ	†1.1KΩ	#2.2KΩ		
V 10	6AL5	0Ω	20KΩ	.1Ω	0Ω	Inf.	0Ω	Inf.		
V 11	6AV6	4.7 Meg.	0Ω	.1Ω	0Ω	Inf.	Inf.	#220KΩ		
V 12	6K6GT	.8Ω	#.1Ω	†750Ω	†150Ω	280KΩ	130KΩ	#0Ω	#0Ω	
V 13	6SN7GT	1.1 Meg. 2.1 Meg.	▲1 Meg. ▲3.5 Meg.	0Ω	2.2 Meg.	†1000Ω	5.5KΩ 560Ω	0Ω	.1Ω	
V 14	6AL5	120Ω	120Ω	0Ω	.1Ω	4.8 Meg.	0Ω	4.8 Meg.		
V 15	6SN7GT	5.1 Meg.	▲27KΩ	1.5KΩ	100KΩ	▲200KΩ	1.5KΩ	.1Ω	0Ω	
V 16	6BG6G	Inf.	0Ω	100Ω	5KΩ	1 Meg.	Inf.	.1Ω	▲18KΩ	TOP CAP ▲270Ω
V 17	6W4GT	Inf.	Inf.	▲0Ω	Inf.	†160Ω	Inf.	#.1Ω	#0Ω	
V 18	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ▲700Ω
V 19	5U4G	Inf.	65KΩ	Inf.	32Ω	Inf.	32Ω	Inf.	65KΩ	
V 20	12LP4A	#.1Ω	250KΩ	PIN 10 ▲66KΩ	PIN 11 250KΩ 33KΩ	PIN 12 #0Ω				

FOCUS CONTROL IN THE FULLY COUNTERCLOCKWISE POSITION FOR THESE MEASUREMENTS.
† MEASURED FROM PIN 8 OF V19.
# MEASURED FROM PIN 8 OF V17.
▲ MEASURED FROM PIN 3 OF V17.

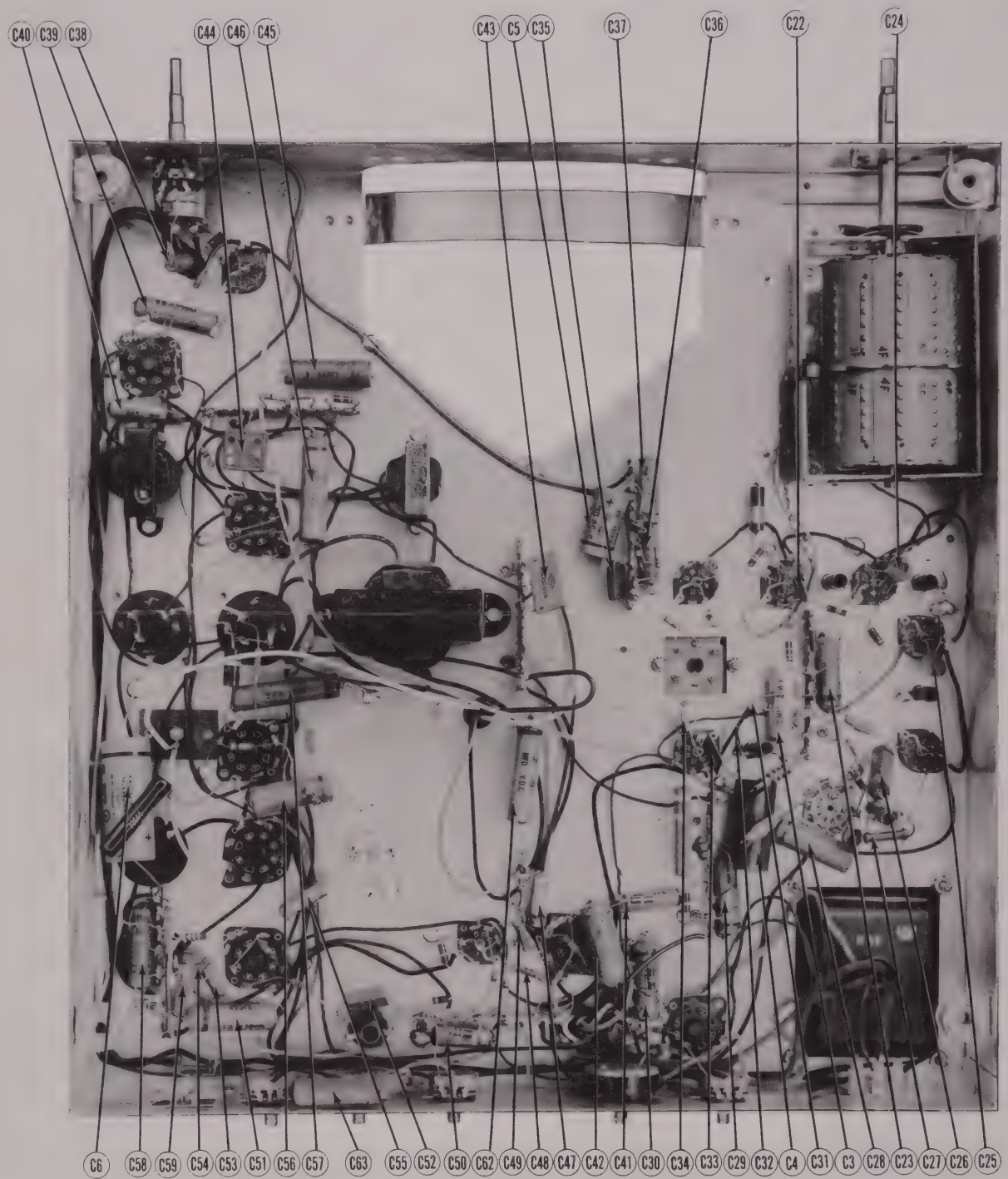
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



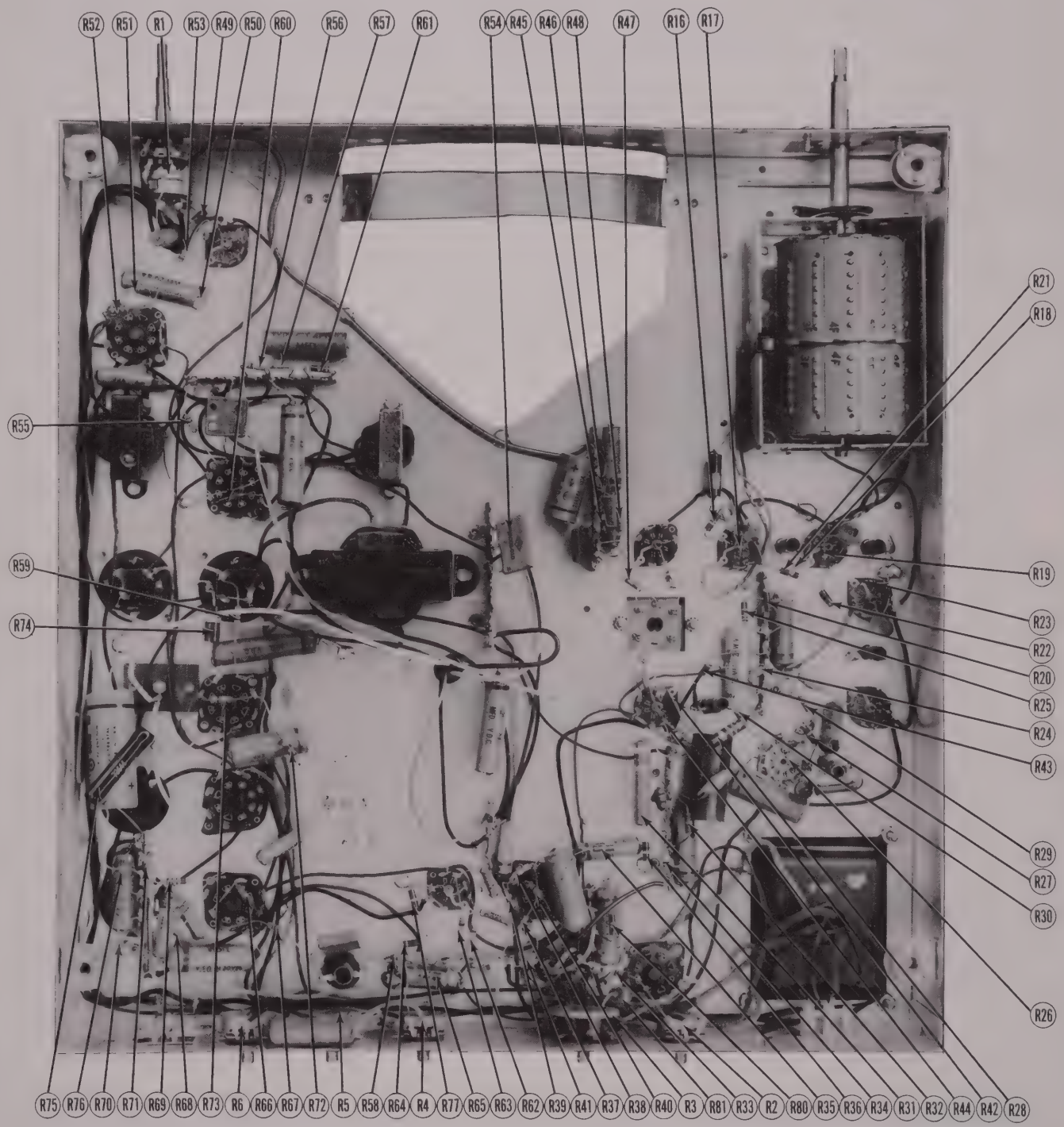
RF TUNER-RIGHT SIDE



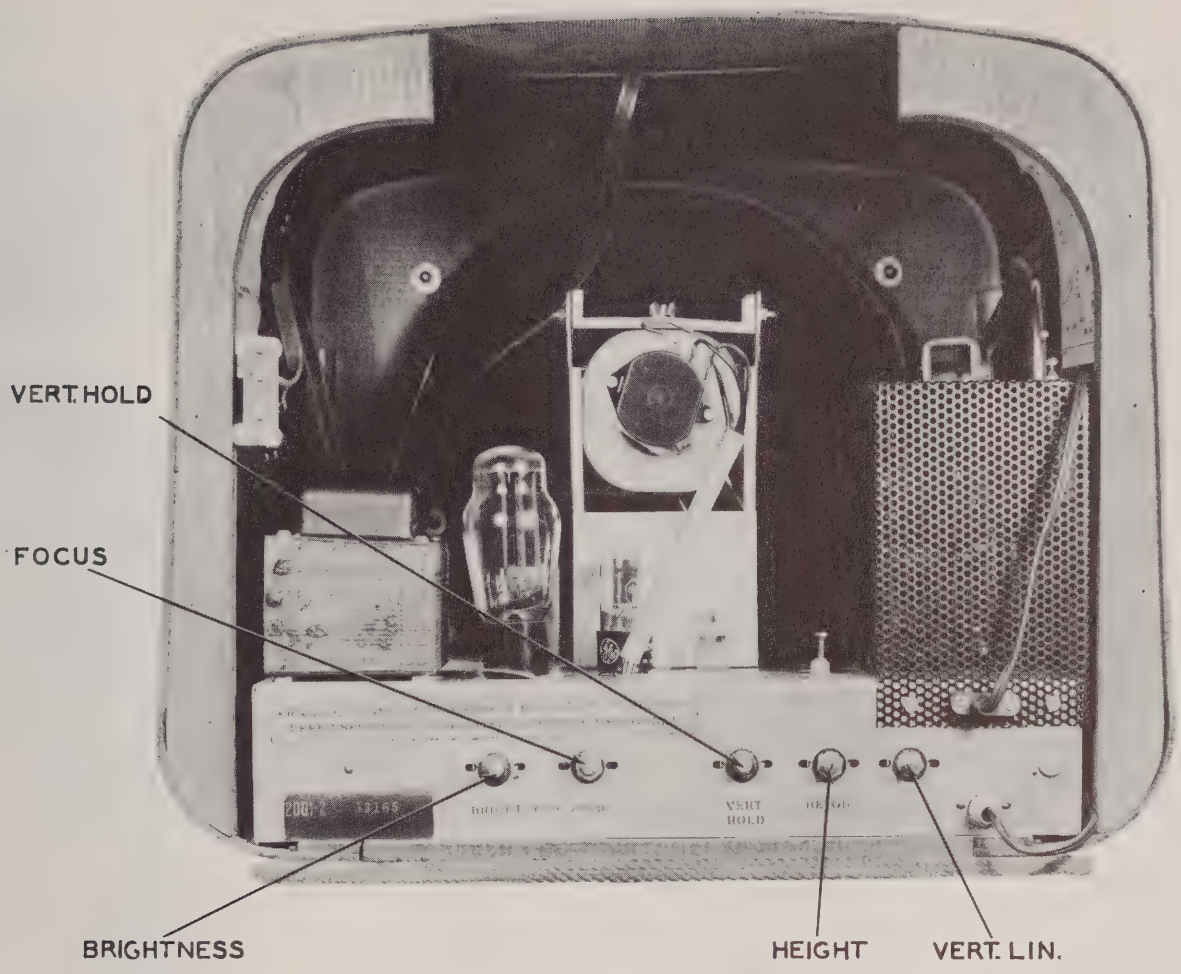
RF TUNER-BOTTOM VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the "ringing" coil slug until the picture synchronizes horizontally. The picture should remain in synchronization at least 45° each side of the hold control mid-position.

Adjust the horizontal drive trimmer (B2) clockwise as far as possible without crowding the right half of the picture.

Adjust the width slug (B3) until the picture properly fills the mask horizontally.

Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right. Readjustment of B2 may be necessary for optimum results.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs from front of set.
2. Remove eight phillips head screws holding rear cover. Remove cover.
3. Disconnect built-in antenna leads. Remove two phillips head screws holding antenna terminal to cabinet.
4. Disconnect speaker plug in rear of chassis.
5. Remove four large screws holding chassis at bottom. Remove chassis.
6. Remove four 1/4" hex nuts holding speaker. Remove speaker.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF	6AU6	6AU6	7BK	
V4	2nd Video IF	6AU6	6AU6	7BK	
V5	3rd Video IF	6AU6	6AU6	7BK	
V6	Video Det. -AGC	6AL5	6AL5	6BT	
V7	Video Amp.	12AU7	12AU7	9A	
V8	DC Rest. -Sync. Sep. -Sync. Amp.	6SN7GT	6SN7GT	8BD	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Det.	6AL5	6AL5	6BT	
V11	AF Amp.	6AV6	6AV6	7BT	
V12	Audio Output	6K6GT	6K6GT	7S	
V13	Vert. Osc. -Vert. Amp.	6SN7GT	6SN7GT	8BD	
V14	Hor. AFC	6AL5	6AL5	6BT	
V15	Hor. Mult.	6SN7GT	6SN7GT	8BD	
V16	Hor. Output	6BG6G	6BG6G	5BT	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rect.	1B3GT	1B3GT	3C	
V19	LV Rect.	5U4G	5U4G	5T	
V20	Picture Tube	12LP4A	12LP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450		AF88J20E			TVL-308	▪ Filter
B	40	450						■ Filter
C	100	300						▲ Filter
C2A	40	450						▰ Filter
B	40	450						▪ Filter
C	100	200						▲ Vert. Output Cath. Bypass.
C3	25	25		PRS25/25			TVA-6	V. Amp. Cathode Bypass
C4	8	450		PRS450/8			UT-8	V. Amp. Plate Decoupling
C5	5	50		PRS150/4			TVA-13	Stabilizing Cap.
C6	20	450		PRS450/20			TVA-22	Decoupling
C7	5			SI5DNPO		NPOK-5		Fixed Trimmer *
C8	.5-3				829-3			Variable Trimmer
C9	.5-3				829-3			Variable Trimmer
C10	120			GP120K	D6-120	GP2K-120		RF Decoupling
C11	10000			BPD-10		811-01	36C1	RF Filament Bypass
C12	100			SI100KN750	DN-100	GP1K-100		RF Coupling
C13	.5-3				829-3			Variable Trimmer
C14	20			SI20KNPO	D2-20	NPOK-20		Osc. Grid Cap.
C15	10			SI10DN750	DN-10	N750K-10		Fixed Trimmer
C16	.5-3				829-3			Variable Trimmer
C17	1000			GP1000M	D6-102	811-001	29C4	Osc. Filament Bypass
C18	1000			GP1000M	D6-102	811-001	29C4	RF Bypass
C19	10			CN10DNPO	D2-10	NPOK-10		Fixed Trimmer
C20	72	300		1469-000075	D2-75	NPOM-75		Fixed Trimmer
C21	300			GP300M	D6-301	GP2K-300		IF Coupling
C22	5000			BPD-5	D6-502	811-005	29C1	RF Bypass
C23	.05	200		P288-05			TM-15	AGC Filter
C24	5000			BPD-5	D6-502	811-005	29C1	2nd V. IF Decoupling
C25	5000			BPD-5	D6-502	811-005	29C1	RF Bypass
C26	.05	200		P288-05			TM-15	Video Coupling
C27	56			SI56KNPO	D2-56	NPOM-56		Fixed Trimmer
C28	.05	600		P688-05			TM-15	Video Coupling
C29	.1	400		P488-1			TM-1	Video Coupling
C30	.1	400		P488-1			TM-1	Pic. Tube Cath. Bypass
C31	2.2				D2-2.2			S. IF Coupling
C32	75			CN75JNPO	D2-75	NPOM-75	MS-47	Fixed Trimmer
C33A	4000			BPD-5	D6-472	882-2 x 004	36C4	S. IF Cathode Bypass
B	4000			BPD-5	D6-472			S. IF Decoupling
C34	5000			BPD-5	D6-502	811-005	29C1	S. IF Decoupling
C35	330	500		1468-00035	D6-331	GP2K-330	1FM-335	Diode Load Cap.
C36	.003	600		P688-003	D6-302	GP2M-003	TM-23	De-emphasis
C37	.005	600		P688-005	D6-502	811-005	TM-25	Audio Coupling
C38	.002	600		P688-002	D6-202	GP2M-002	TM-22	Audio Coupling
C39	.02	600		P688-02			TM-12	Audio Coupling
C40	.005	600		P688-005	D6-502	811-005	TM-25	Output Plate Bypass
C41	.005	600		P688-005	D6-502	811-005	TM-25	Sync. Coupling
C42	.05	600		P688-05			TM-15	Sync. Coupling
C43A	2000		†	GP2000M	D6-202	GP2M-002	TM-22	Integrator Net.
B	5000			GP5000M	D6-502	811-005	TM-25	Integrator Net.
C	5000			GP5000M	D6-502	811-005	TM-25	Integrator Net.
C44	4900	500		1467-005	D6-500	811-005	1FM-25	Vert. Osc. Grid Cap.
C45	.1	400		P488-1			TM-1	Vert. Discharge
C46	.25	200		P488-25			TC-2	Vert. Sweep Coupling
C47	.01	600		P688-01	D6-103	811-01	TM-11	Vert. Sweep Coupling
C48	1500			GP1500M	D6-152	GP2L-0015	1FM-215	Hor. Sync. Coupling
C49	1500			GP1500M	D6-152	GP2L-0015	1FM-215	Hor. Sync. Coupling
C50	.005	600		P688-005	D6-502	811-005	TM-25	AFC Filter
C51	.1	200		P288-1			TM-1	AFC Filter
C52	4000	500		1464-004			MS-24	Fixed Trimmer
C53	330	500		1468-00035	D6-331	GP2K-330	1FM-335	Hor. MV Feedback
C54	390			GP390M	D6-391	GP2K-390	1FM-34	Hor. Discharge
C55	.001	600		P688-001	D6-102	GP2L-001	TM-21	Hor. Sweep Coupling
C56	.05	600		P688-05			TM-15	Hor. Output Screen Bypass
C57	.25	200		P488-25			TC-2	Hor. Output Cath. Bypass
C58	.02	600		P688-02			TM-12	Hor. Feedback
C59	.05	200		P288-05			TM-15	Voltage Divider
C60	.05	600		P688-05			TM-15	Damper Filter
C61	.05	200		P288-05			TM-15	Fixed Trimmer
C62	.25	200		P488-25			TC-2	Hor. Sweep Coupling
C63	.033	600		P688-033			TM-13	Decoupling
C64	500	10000			TV3-501			HV Filter

* Not used in all models.
† Items C43A, C43B, C43C and R54A, R54B, R54C are combined into one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Packard-Bell PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	5000Ω	½	25834A		25834A	SBB-567-S	Contrast control-front
B	500KΩ	½					Volume control and switch-rear
R2A	500KΩ	½	25832	Q11-133	M-58-S	AN-59	Brightness control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R2A per instructions
R3	2250Ω	2	25830	W-3000	43-2500	V-133	Focus control-Wire Wound
R4A	1 Meg.	½	25833	Q11-137	M-61-S	AN-69	Vert. hold control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R4A per instructions
R5A	2.5 Meg.	½	25805D	Q11-239	M-84-S	AN-83	Height control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R5A per instructions
R6A	5000Ω	½	25807B	Q11-114	M-19-S	AN-10	Vert. linearity control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R6A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R7	3900Ω	½		BTS-3900	Ant. Coil Shunt
R8	47KΩ 20%	½		BTS-47K	AGC Network
R9	10KΩ	½		BTS-10K	RF Plate Coil Shunt
R10	2200Ω 20%	½		BTS-2200	RF Decoupling
R11	4700Ω	½		BTS-4700	Conv. Grid
R12	220KΩ 20%	½		BTS-220K	Conv. Grid
R13	15KΩ 20%	½		BTS-15K	Conv. Plate Decoupling
R14	10KΩ	½		BTS-10K	Osc. Grid
R15	4700Ω	½		BTS-4700	Osc. Plate
R16	10KΩ	½			1st Video IF Grid
R17	120Ω	½			1st Video IF Cathode
R18	22KΩ	½		BTS-22K	2nd Video IF Transformer Shunt
R19	82Ω	½			2nd Video IF Cathode
R20	2.2 Meg. 20%	½		BTS-2.2 Meg.	AGC Network
R21	100Ω	½			Decoupling
R22	100Ω	½			Decoupling
R23	100Ω	½			3rd Video IF Cathode
R24	4700Ω	½		BTS-4700	Video Det. Diode Load
R25	3300Ω	½		BTS-3300	AGC Network
R26	1 Meg. 20%	½		BTS-1 Meg.	Video Amp. Grid
R27	3300Ω	½		BTS-3300	Video Amp. Plate
R28	56KΩ	1		BTA-56K	Video Amp. Plate Decoupling
R29	470Ω	½		BTS-470	Video Amp. Cathode
R30	1 Meg. 20%	½		BTS-1 Meg.	Video Amp. Grid
R31	4700Ω	2		BT-2-4700	Video Amp. Plate
R32	2200Ω	½		BTS-2200	Isolation
R33	33KΩ	½		BTS-33K	Voltage Divider-See Note 1
R34	100KΩ	½		BTS-100K	Picture Tube Grid
R35	150KΩ 20%	½		BTS-150K	Voltage Divider
R36	150KΩ 20%	½		BTS-150K	DC Rest. Load
R37	1.5 Meg. 20%	½		BTS-1.5 Meg.	Sync. Amp. Plate
R38	470KΩ	½		BTS-470K	Voltage Divider
R39	3300Ω	½		BTS-3300	Sync. Sep. Cathode
R40	1 Meg.	½		BTS-1 Meg.	Sync. Sep. Grid
R41	3900Ω	½		BTS-3900	Sync. Sep. Plate
R42	82Ω	½			Sound IF Cathode
R43	2200Ω	½		BTS-2200	Sound IF Decoupling-See Note 2
R44	1000Ω	½		BTS-1000	Sound IF Decoupling
R45	10KΩ	½		BTS-10K	Ratio Det. Diode Load
R46	10KΩ	½		BTS-10K	Ratio Det. Diode Load
R47	470Ω	½		BTS-470	Balancing
R48	22KΩ	½		BTS-22K	De-emphasis
R49	4.7 Meg. 20%	½		BTS-4.7 Meg.	AF Amp. Grid
R50	220KΩ 20%	½		BTS-220K	AF Amp. Plate
R51	100KΩ 20%	½		BTS-100K	Output Grid
R52	330KΩ	½		BTS-330K	Voltage Divider
R53	180KΩ	½		BTS-180K	Voltage Divider
R54A	22KΩ	½	*	BTS-22K	Integrator Network
B	8200Ω	½		BTS-8200	Integrator Network
C	8200Ω	½		BTS-8200	Integrator Network
R55	1 Meg. 20%	½		BTS-1 Meg.	Vert. Osc. Grid
R56	1 Meg. 20%	½		BTS-1 Meg.	Vert. Osc. Plate
R57	6.8Meg. 20%	½		BTS-6.8 Meg.	Voltage Divider
R58	100KΩ 20%	½		BTS-100K	Voltage Divider
R59	56KΩ	½		BTS-56K	Vert. Amp. Cathode
R60	2.2Meg. 20%	½		BTS-2.2 Meg.	Vert. Amp. Grid
R61	3300Ω	½		BTS-3300	Vert. Peaking
R62	100KΩ 20%	½		BTS-100K	Horiz. AFC Disc. Load
R63	100KΩ 20%	½		BTS-100K	Horiz. AFC Disc. Load
R64	4.7Meg. 20%	½		BTS-4.7 Meg.	Horiz. AFC Disc. Load
R65	470KΩ 20%	½		BTS-470K	Horiz. AFC Filter Network
R66	1500Ω	½		BTS-1500	Horiz. Osc. Cathode
R67	5600Ω	½		BTS-5600	Horiz. Osc. Plate
R68	100KΩ 20%	½		BTS-100K	Horiz. Osc. Grid
R69	180KΩ	½		BTS-180K	Horiz. Osc. Plate
R70	6800Ω	½		BTS-6800	Horiz. Peaking
R71	22KΩ	½		BTS-22K	Filter
R72	68Ω	½			Parasitic Supp.
R73	1 Meg. 20%	½		BTS-1 Meg.	Horiz. Output Grid
R74	100Ω	2		BW-2-100	Horiz. Output Cathode
R75	18KΩ	6		AB-18,000	Horiz. Output Screen-Wire Wound
R76	56KΩ	½		BTS-56K	Decoupling
R77	120Ω	½		BW-½-120	Feedback Network
R78	3.3Ω	1			HV Rect. Filament
R79	1 Meg.	1			HV Filter
R80	10KΩ	½		BTS-10K	Acc. Anode Load
R81	270Ω	2		BW-2-270	Focus Coil Shunt

Note 1. Some models use 100KΩ resistor in this application.
Note 2. Some models use 560Ω resistor in this application.
• Items C43A, C43B, C43C and R54A, R54B, R54C are combined into one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ④ 1.6A	680VCT .170ADC	5VAC ③ 3A	6.3VAC ② 2A SEC. 4 6.3VAC ② 6A	89035	P-8160 ① P-5014 ③	P-3067 ① ②	TP-370 ① ②

① Add series resistor to reduce plate voltage.
② Drill new mounting holes.
③ Mount where space permits and use for SEC. #3.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	230Ω	1350Ω	89031	A-8111 ④	A-3000 ④	TSO-1 ④	Vert. Block Osc. Trans.
T3	660Ω Tap ③ 190Ω	13.5Ω Tap ③ .7Ω SEC. 2 0Ω		A-8128	HVO-3	TFB-2	Hor. Output Trans.
T4	920Ω	12Ω	89422	A-8112 ④	A-3036	TSO-5	Vert. Output Trans.
T5A	14Ω			DY-1	MD-3		Hor. Deflection Coil
B	65Ω						Vert. Deflection Coil
T6	240Ω		29505	FC-10	MF-1		Focus Coil

④ Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Packard-Bell PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T7	6.2KΩ	3.8Ω	585Ω	.5Ω	89427	A-3878	A-2931	RO-13	

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	PM	3.8Ω	83302	ST-110 MOD. P6-V	6A21	
	CONE DIA.	V. C. DIA.				
SP2	5 3/4"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: MEISSNER PART No.	NOTES
L1	Ant. Coil	0Ω				
L2	RF, Mixer Grid & Osc.	0Ω				
L3	Fil. Choke	0Ω				
L4	Fil. Choke	0Ω				
L5	1st Video IF	.2Ω				
L6	RF Coil	.2Ω				
L7	1st Video IF Coupling	1Ω				
L8	2nd Video IF	.1Ω	.1Ω			
L9	3rd Video IF	.1Ω	.1Ω			
L10	4th Video IF	.1Ω	.1Ω			
L11	Peaking	2.8Ω				36 microhenries
L12	Peaking	9.2Ω			19-1921♯	180 microhenries. Wound on 39KΩ resistor.
L13	4.5MC Trap	1.2Ω				
L14	Peaking	7.1Ω			19-1921	120 microhenries. Wound on 22KΩ resistor.
L15	Peaking	2.8Ω				36 microhenries
L16	Peaking	6.8Ω			19-1920†	93 microhenries
L17	Sound IF	1Ω				
L18	Ratio Det. Trans.	8.2Ω	.1Ω			
L19	Ringing	110Ω				
L20	Horiz. Lin.	35Ω				
L21	Horiz. Size	.1Ω				

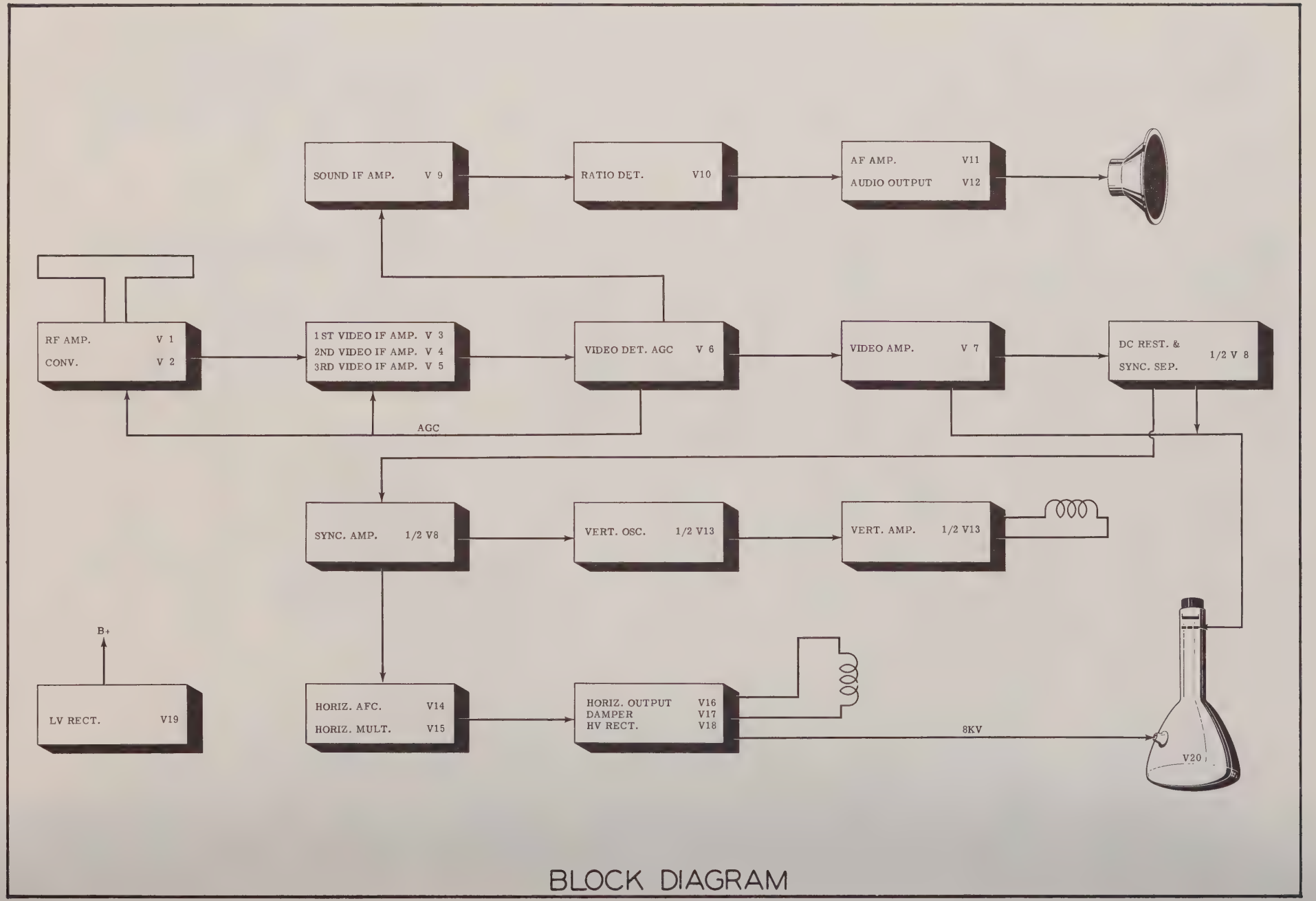
♯ Connect 39KΩ Resistor In Parallel.
† Connect 22KΩ Resistor In Parallel.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: PACKARD-BELL PART No.	NOTES
M1	Bayonet	6-8	.15	Brown		Type #47

MISCELLANEOUS

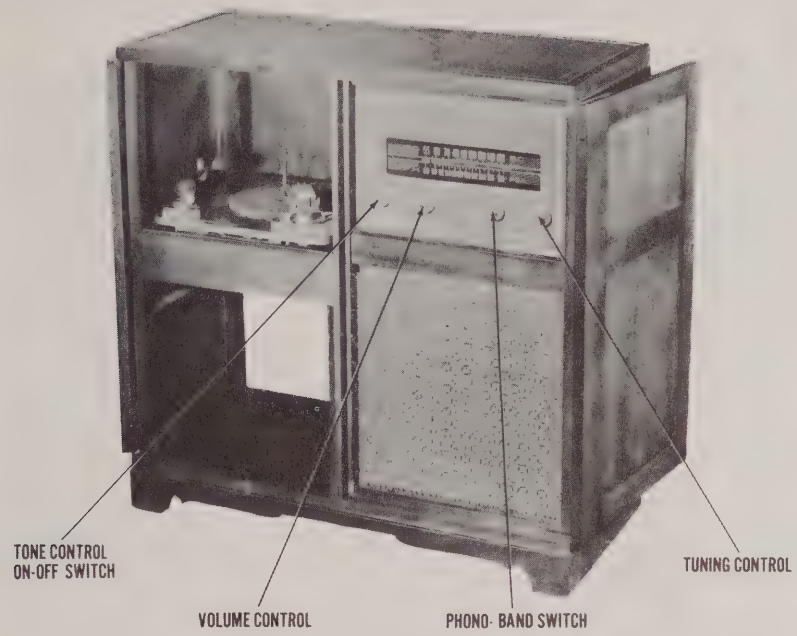
ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
M2	RF Tuner		
M3	Fuse		.25A 250V Type 3AG
M4	Ion Trap		
M5	Trimmer		Horiz. Drive



BLOCK DIAGRAM

PHILCO
MODELS 50-1721, 50-1723, 50-1724

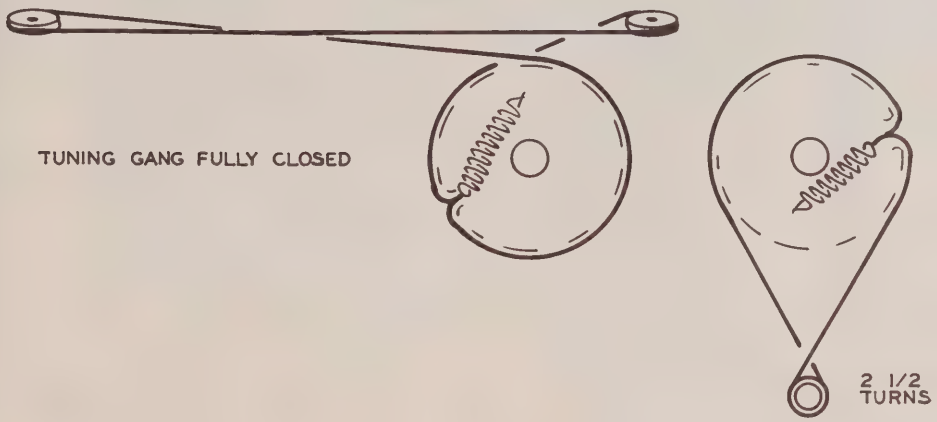
PHILCO
MODELS 50-1721, 50-1723, 50-1724



PHILCO MODEL 50-1724

TRADE NAME	Philco, Models 50-1721, 50-1723, 50-1724		
MANUFACTURER	Philco Corp., Tioga and "C" Sts., Philadelphia, Pa.		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES (EIGHT)	Types 6BA6 RF Amp., 7F8 Converter-Phono Pre-Amp., 6BA6 1st IF Amp., 6AU6 2nd IF Amp., 6BC7 Ratio Det.-AVC, 6AV6 DET-AF Amp., 6Y6G Power Output, 5AZ4 Rectifier		
POWER SUPPLY	110-120 Volts AC	RATING	.8 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	530-1630KC	FREQ. MOD.	88-108MC

RECORD CHANGER -- PHILCO MODEL M-20



DIAL CORD DRIVE

PHILCO
MODELS 50-1721, 50-1723, 50-1724

PROPERTY OF
L. F. RAMSEN-SHIP
CON MEDIA ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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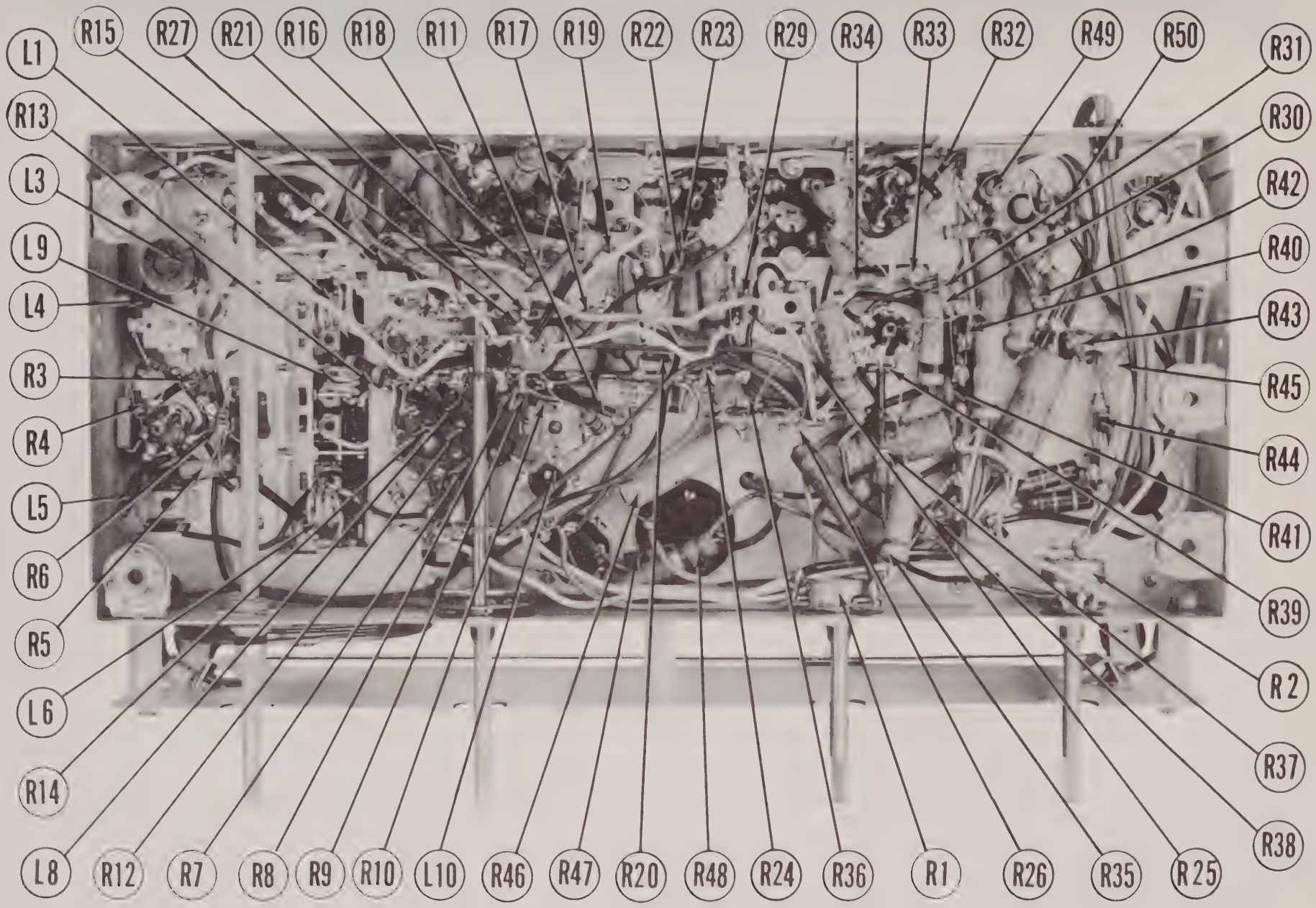
R15
R27
R21
R16
R18
R11
R17
R19
R22
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R29
R34
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L1
R13
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L6
R14
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R12
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L10
R46
R47
R20
R48
R24
R36
R1
R26
R35
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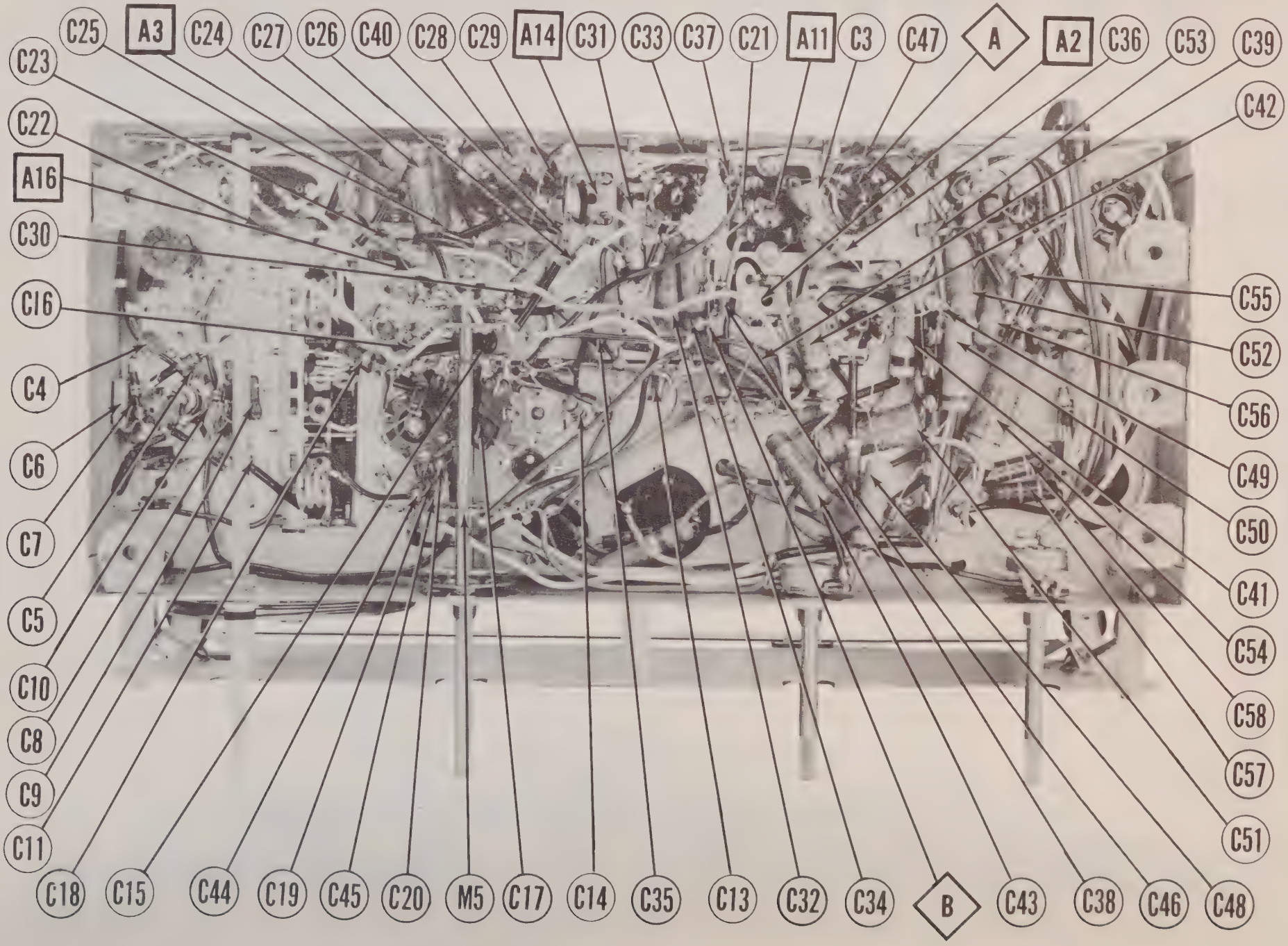
R45
R44
R41
R39
R2
R37
R38


C25
A3
C24
C27
C26
C40
C28
C29
A14
C31
C33
C37
C21
A11
C3
C47
A
A2
C36
C53
C39
C23
C42
C22
A16
C30
C16
C55
C52
C4
C56
C6
C49
C7
C50
C5
C41
C10
C54
C8
C58
C9
C57
C11
C51
C18
C15
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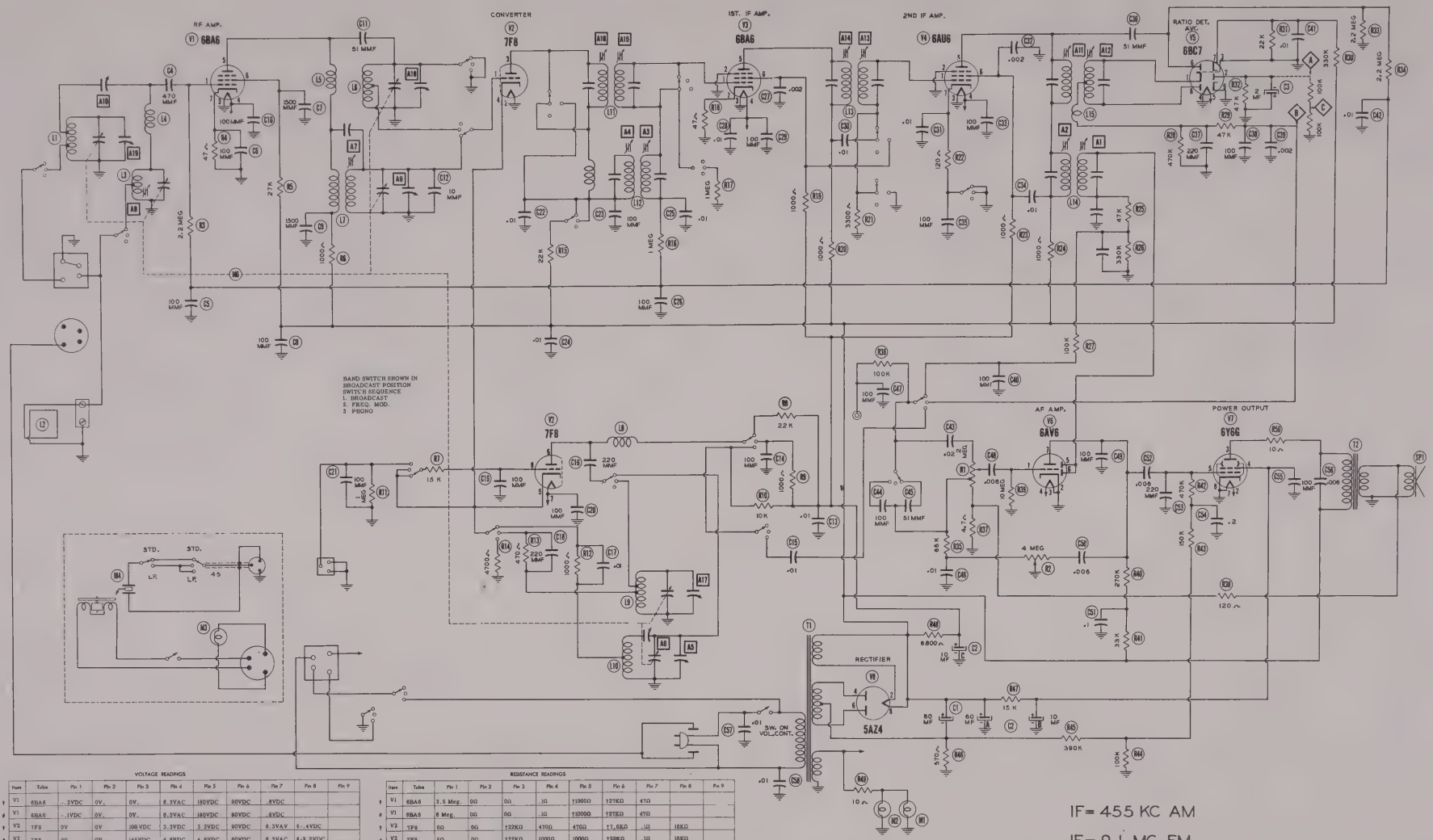
B
C43
C38
C46
C48



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V1	6BA6	-.2VDC	0V.	0V.	6.3VAC	180VDC	80VDC	.6VDC	
#	V1	6BA6	-.1VDC	0V.	0V.	6.3VAC	180VDC	80VDC	.6VDC	
†	V2	7F8	0V	0V	100 VDC	3.3VDC	3.3VDC	90VDC	6.3VAC	8-.4VDC
#	V2	7F8	0V.	0V	145VDC	4.6VDC	4.6VDC	80VDC	6.3VAC	8-2.2VDC
†	V3	6BA6	-.1VDC	0V.	0V.	6.3VAC	175VDC	115VDC	1 VDC	
#	V3	6BA6	-1VDC	0V	0V.	6.3VAC	175VDC	115VDC	1 VDC	
†	V4	6AU6	0V.	0V.	0V.	6.3VAC	175VDC	115VDC	1.3VDC	
#	V4	6AU6	0V.	0V.	0V.	6.3VAC	175VDC	115VDC	1.3VDC	
†	V5	6BC7	-4.8VDC	0-1VDC	0V.	0V.	6.3VAC	0V.	11VDC	-.6VDC 0V.
#	V5	6AV6	.6VDC	0V.	0V.	6.3VAC	-.5VDC	-.5VDC	85VDC	
#	V7	6Y6G	175VDC	6.3VAC	175VDC	150VDC	-4VDC	0V.	0V.	6V.
#	V8	5AZ4	0V.	190VDC	0V.	380VAC	0V.	380VAC	0V.	190VDC

† TAKEN WITH VACUUM TUBE VOLTMETER.
† TAKEN IN "FM" POSITION.
# TAKEN IN "AM" POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
*	V1	6BA6	3.5 Meg.	0Ω	0Ω	.1Ω	†1000Ω	†21KΩ	47Ω	
#	V1	6BA6	6 Meg.	0Ω	0Ω	.1Ω	†1000Ω	†27KΩ	47Ω	
†	V2	7F8	0Ω	0Ω	†22KΩ	470Ω	470Ω	†7.8KΩ	.1Ω	18KΩ
#	V2	7F8	5Ω	0Ω	†22KΩ	1000Ω	1000Ω	†28KΩ	.1Ω	18KΩ
†	V3	6BA6	†30KΩ	0Ω	0Ω	.1Ω	†1000Ω	†7.8KΩ	47Ω	
*	V3	6BA6	5 Meg.	0Ω	0Ω	.1Ω	†1000Ω	†7.8KΩ	47Ω	
†	V4	6AU6	2.5Ω	0Ω	0Ω	.1Ω	†1000Ω	†7.8KΩ	120Ω	
#	V4	6AU6	3.2KΩ	0Ω	0Ω	.1Ω	†1000Ω	†7.8KΩ	120Ω	
*	V5	6BC7	Inf.	47KΩ	0Ω	0Ω	6.3VAC	1.3 Meg.	20KΩ	Inf. 0Ω
#	V5	6AV6	10 Meg.	0Ω	0Ω	.1Ω	380KΩ	380KΩ	†300KΩ	
#	V7	6Y6G	†180Ω	1Ω	†300Ω	†15KΩ	†20KΩ	.5Ω	0Ω	0Ω
#	V8	5AZ4	Inf.	65KΩ	Inf.	610Ω	Inf.	610Ω	Inf.	65KΩ

* MEASURED WITH PIN 1 OF V4.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set the pointer 1 11/16 inches to the right of the left hand edge of the dial backplate.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (Grid) of 7F8 (V2). Low side to chassis.	455KC (400 ∿ Mod.)	AM (CCW)	Tuning gang fully closed	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1600KC	"	Set pointer 10 1/4 ins. to the right of left hand end of dial backplate.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	580KC	"	Set pointer 5 7/16 ins. to the right of left hand end of dial backplate.	"	A6, A7, A8	"
4.		Loop	1500KC	"	Tune for max. output.	"	A9, A10	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from point A to chassis. The junction of these two resistors is alignment point C as shown on the schematic.
Keep output of signal generator as low as possible to prevent overloading.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V4). Low side to chassis.	9.1MC (Unmod.)	FM (center)	Tuning gang fully closed	DC Probe to Point A. Common to chassis.	A11	Adjust for maximum deflection.
6.	.01MFD	"	"	"	"	DC Probe to Point B. Common to Point C.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
7.	.01MFD	High side to pin 1 (Grid) of 7F8 (V2). Low side to chassis.	"	"	"	DC Probe to Point A. Common to chassis.	A13, A14, A15, A16	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V3). Low side to chassis.	9.1MC (450KC Sweep)	FM (center)	Tuning gang fully closed.	Vert. Amp. to Point A. Low side to chassis.	A11, A13, A14	Disconnect stabilizer cap. C3. Adjust for maximum amplitude and symmetry as per figure 1
6.	.01MFD	High side to pin 1 (Grid) of 7F8 (V2). Low side to chassis.	"	"	"	"	A15, A16	"
7.	.01MFD	"	"	"	"	Vert. Amp. to Point B. Low side to chassis.	A12	Reconnect capacitor C3. Adjust A12 so 9.1MC occurs at center of crossover lines as per figure 2. Slightly retouch A11 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

Check resonance of circuits containing L1, L6 and L9 by inserting each end of a tuning wand into coil. If the VTVM deflection increases when the powdered iron end is inserted, compress coil turns slightly. If deflection increases when the brass end is inserted expand the coil turns slightly. If deflection decreases as each end is inserted no adjustment is required. Use extreme care when adjusting coil turns as only a small change is required at these high frequencies.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	300Ω carbon res.	High side thru 300Ω resistor to pin 1 of "FM Ant." socket. Low side to chassis.	105MC (Unmod.)	FM	Set pointer 9 1/8 ins. to the right of left hand end of dial backplate.	DC Probe to Point A. Common to chassis.	A17, A18, A19	Adjust for maximum deflection.
9.	"	"	92MC	"	Set pointer 6 3/16 ins. to the right of left hand end of dial backplate.	"	L1, L6, L9	See instructions above.

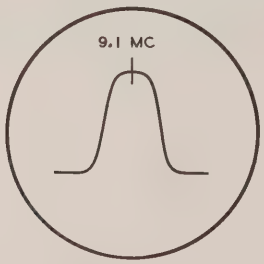


FIG. 1

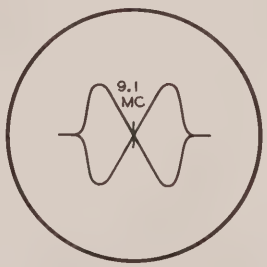


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter-Phono Pre Amp.	7F8	7F8	8BW	
V3	1st IF Amp.	6BA6	6BA6	7BK	
V4	2nd IF Amp.	6AU6	6AU6	7BK	
V5	Ratio Det. -AVC	6BC7	6BC7	9R	
V6	DET. -AF Amp.	6AV6	6AV6	7BT	
V7	Power Output	6Y6G	6Y6G	7AC	
V8	Rectifier	5AZ4	5AZ4	5T	

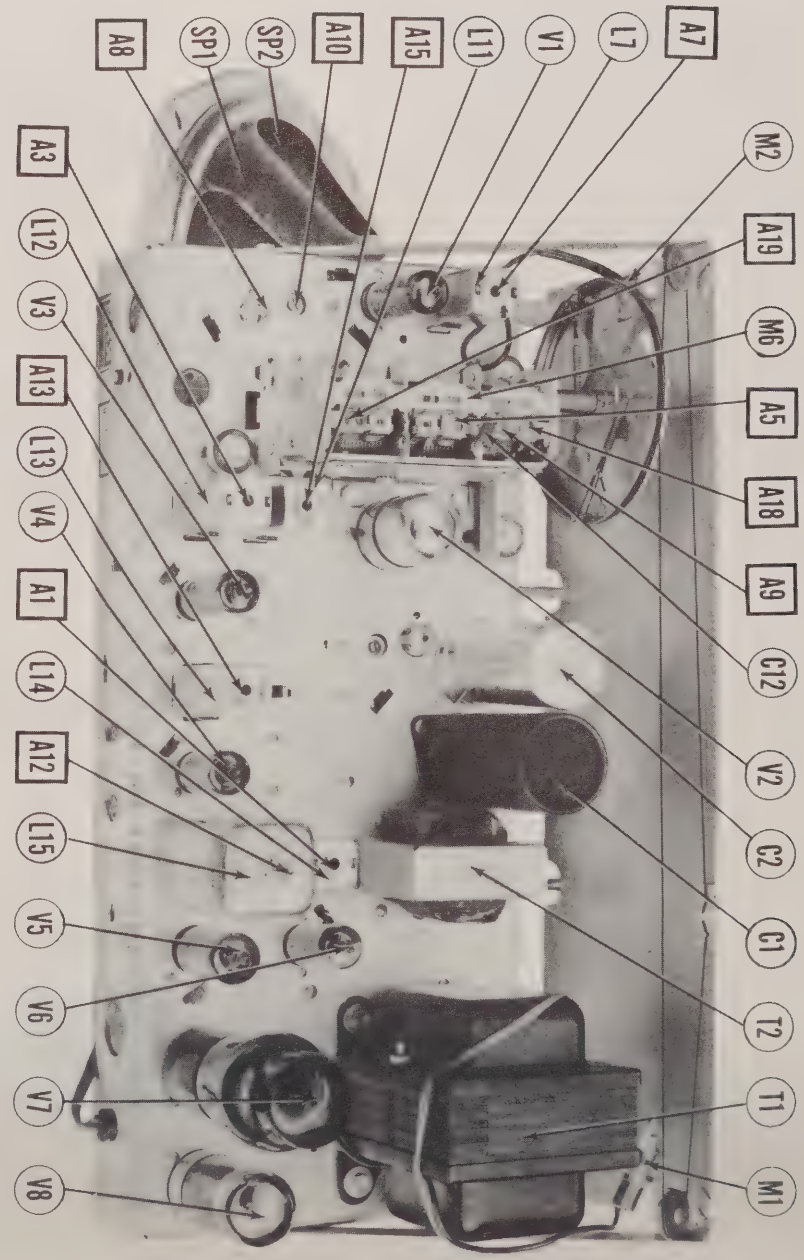
CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	
C1	80	400	30-2568-35	AF16I			EL-80	Filter
C2A	60	400	30-2570-45				D13352	▲ Filter
B	10	400						■ Filter
C	10	400						▲ Filter
C3	2	50	30-2417-7	E26E6			TVA-12	Stabilizing Cap.
C4	470		62-147001001	GP470M	D6-471	GP2K-470	1FM-35	RF Coupling
C5	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	AVC Filter
C6	100	500	60-10105407	1468-0001	D6-101	GP1K-100	1FM-31	RF Cathode Bypass
C7	1500		62-215001011	GP1500M	D6-152	GP2L-0015	1FM-215	RF Screen Bypass
C8	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	RF Bypass
C9	1500		62-215001011	GP1500M	D6-152	GP2L-0015	1FM-215	RF Plate Decoupling
C10	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	RF Filament Bypass
C11	51		62-051009001	GP51M	D6-500	GP1K-50	1FM-45	RF Coupling
C12	10		62-010009001	GP10M	D6-100	GP1K-10	MS-41	Fixed Trimmer
C13	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	RF Bypass
C14	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	Osc. Plate Decoupling
C15	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	Audio Coupling
C16	220		62-122001001	GP220M	D6-221	GP2K-220	1FM-32	Osc. Feedback
C17	.01	100	61-0120	P488-01	D6-103	821-01	TM-11	Osc. Cathode Bypass
C18	220		62-122001001	GP220M	D6-221	GP2K-220	1FM-325	Osc. Cathode Bypass
C19	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	Osc. Grid Cap.
C20	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	Conv. Filament Bypass
C21	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	Tone Compensation
C22	.01	600	61-0120	P688-01	D6-103	821-01	TM-11	Conv. Plate Decoupling
C23	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	Conv. Plate Decoupling
C24	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	RF Bypass
C25	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	AVC Filter
C26	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	AVC Filter
C27	.002	400	61-0062	P688-002	D6-202	GP2M-002	TM-22	1st IF Screen Bypass
C28	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	1st IF Fil. Bypass
C29	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	1st IF Fil. Bypass
C30	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	1st IF Plate Decoupling
C31	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	2nd IF Cathode Bypass
C32	.002	400	61-0062	P688-002	D6-202	GP2M-002	TM-22	2nd IF Screen Bypass
C33	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	2nd IF Fil. Bypass
C34	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	2nd IF Plate Decoupling
C35	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	RF Bypass
C36	51		62-015009001	GP51K	D6-500	GP1K-51	1FM-45	IF Coupling
C37	220		62-122001001	GP220M	D6-221	GP2K-220	1FM-325	Diode Load Cap.
C38	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	RF Bypass
C39	.002	400	61-0062	P688-002	D6-202	GP2M-002	TM-22	De-emphasis
C40	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	RF Bypass
C41	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	DAVC Decoupling
C42	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	AVC Filter
C43	.02	400	61-0108	P488-02			TM-12	Audio Coupling
C44	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	Tone Compensation
C45	51		62-051009001	GP51M	D6-500	GP1K-50	1FM-45	Tone Compensation
C46	.01	400	61-0120	P488-01	D6-103	821-01	TM-11	Tone Compensation
C47	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	RF Bypass
C48	.006	400	45-3500-7	P488-006	D6-562	GP2M-0056	TM-26	Audio Coupling
C49	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	AF An.p. Plate Bypass
C50	.006	400	45-3500-7	P488-006	D6-562	GP2M-0056	TM-26	Tone Compensation
C51	.1	400	61-0113	P488-1			TM-1	AF Amp. Plate Bypass
C52	.006	600	45-3500-7	P688-006	D6-562	GP2M-0056	TM-26	Audio Coupling
C53	220		62-122001001	GP220M	D6-221	GP2K-220	1FM-325	Output Grid Bypass

SET 98 FOLDER 9

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

C54	.2	200	45-3500-3	P488-22			TC-2	Bias Filter
C55	100		62-110009001	GP100M	D6-101	GP1K-100	1FM-31	RF Bypass
C56	.006	600	45-3500-7	P688-006	D6-562	GP2M-0056	TM-26	Output Plate Bypass
C57	.01	400	45-3505-41	P488-01	D6-103	821-01	TM-11	Line Filter
C58	.01	400	45-3505-41	P488-01	D6-103	821-01	TM-11	Line Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1	2 Meg.	½	33-5535-27	Q18-139X	T-116	BT-78	Volume control tapped at 1 Meg.
R2	4 Meg.	½	33-5566-12			B-86-S	Tone control and switch

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
R3	2.2 Meg.	½	66-5228340	BTS-2.2 Meg.	AVC Network
R4	47Ω	½	66-0478340		RF Cathode
R5	27KΩ	1	66-3274340	BTA-27K	RF Screen
R6	1000Ω	½	66-2108340	BTS-1000	RF Plate Decoupling
R7	15KΩ	½	66-3158340	BTS-15K	Osc. Grid
R8	22KΩ	½	66-3228340	BTS-22K	Osc. Plate
R9	1000Ω	½	66-2108340	BTS-1000	Osc. Plate Decoupling
R10	10KΩ	½	66-3108340	BTS-10K	Phono Pre Amp. Plate
R11	1 Meg.	½	66-5108340	BTS-1 Meg.	Phono Pre Amp. Grid
R12	1000Ω	½	66-2108340	BTS-1000	Mixer Cathode
R13	470Ω	½	66-1478340	BTS-470	Mixer Cathode
R14	4700Ω	½	66-2478340	BTS-4700	Phono Pre Amp. Cathode
R15	22KΩ	½	66-3228340	BTS-22K	Mixer Plate Decoupling
R16	1 Meg.	½	66-5108340	BTS-1 Meg.	AVC Network
R17	1 Meg.	½	66-5108340	BTS-1 Meg.	1st IF Grid
R18	47Ω	½	66-0478340		1st IF Cathode
R19	1000Ω	½	66-2108340	BTS-1000	1st IF Screen
R20	1000Ω	½	66-2108340	BTS-1000	1st IF Plate Decoupling
R21	3300Ω	½	66-2338340	BTS-3300	2nd IF Grid
R22	120Ω	½	66-1128340		2nd IF Cathode
R23	1000Ω	½	66-2108340	BTS-1000	2nd IF Screen
R24	1000Ω	½	66-2108340	BTS-1000	2nd IF Plate Decoupling
R25	47KΩ	½	66-3478340	BTS-47K	Diode Filter
R26	330KΩ	½	66-4338340	BTS-330K	Diode Load
R27	100KΩ	½	66-4108340	BTS-100K	Tone Compensation
R28	470KΩ	½	66-4478340	BTS-470K	Ratio Det. Diode Load-See Note
R29	47KΩ	½	66-3478340	BTS-47K	De-emphasis
R30	330KΩ	½	66-4338340	BTS-330K	Delayed AVC Network
R31	22KΩ	½	66-3228340	BTS-22K	Delayed AVC Network
R32	47KΩ	½	66-3478340	BTS-47K	Ratio Det. Diode Load
R33	2.2 Meg.	½	66-5228340	BTS-2.2 Meg.	AVC Diode Load
R34	2.2 Meg.	½	66-5228340	BTS-2.2 Meg.	AVC Network
R35	68KΩ	½	66-3688340	BTS-68K	Tone Compensation
R36	100KΩ	½	66-4108340	BTS-100K	Tone Compensation
R37	4.7Ω	½	66-9478340	BW-½-4.7	Feedback Network-Wire Wound
R38	120Ω	½	66-1128340	BW-½-120	Feedback Network
R39	10 Meg.	½	66-6108340	BTS-10 Meg.	AF Amp. Grid
R40	270KΩ	½	66-4278340	BTS-270K	AF Amp. Plate
R41	33KΩ	½	66-3338340	BTS-33K	AF Amp. Plate Decoupling
R42	470KΩ	½	66-4478340	BTS-470K	Output Grid
R43	150KΩ	½	66-4158340	BTS-150K	Bias Network
R44	100KΩ	½	66-4108340	BTS-100K	Bias Network
R45	390KΩ	½	66-4398340	BTS-390K	Bias Network
R46	570Ω	9	33-1335-88		Bias Network-Wire Wound
R47	15KΩ	1	66-3154340	BTA-15K	Filter
R48	6800Ω	2	66-2685340	BT-2-6800	Filter
R49	10Ω	½	66-0108340	BW-½-10	Series Pilot Lamp -Wire Wound-See Note
R50	10Ω	½	66-0108340		Parasitic Supp. -See Note

Note. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	520VCT	5VAC	6.3VAC	32-8406	P-4080 ①	P-3153 ①	PV-120 ①
	② .8A	.120ADC	② 2A	② 3.7A				

① Drill new mounting holes and add series resistor to reduce plate voltage.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	2.3KΩ	3.9Ω	185Ω	.6Ω	32-8407	A-3825 ③	A-2928 ③	RO-2 ③	③ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	36-1610-6	ST-120 ④ MOD. P10-S	10A31	④ Replace output transformer to match 6-8Ω voice coil.
	PM	3.9Ω				
	CONE DIA.	V. C. DIA.				
SP2	9 3/8"	1"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
L1	FM Ant.	0Ω		32-4415		
L2A	Loop Ant.	.2Ω		76-4337-6		Model 50-1725
B	Loop Ant.			76-4337-5		Model 50-1723
C	Loop Ant.			76-4337-7		Model 50-1721
L3	AM Ant.	2.5Ω		32-4413		
L4	RF Choke	.5Ω		32-4061-2		
L5	RF Choke	.5Ω		32-4061-2		
L6	FM RF	0Ω		32-4416		
L7	AM RF Trans.	69Ω	5Ω	32-4399-3A		
L8	RF Choke	.5Ω		32-4061-2		
L9	FM Osc.	0Ω		32-4414		
L10	AM Osc.	8Ω		32-4153-6		
L11	1st FM IF	1.5Ω	1.5Ω	32-4372A		
L12	1st AM IF	11.5Ω	11.5Ω	32-4258-2A		
L13	2nd FM IF	2.5Ω	2.5Ω	32-4372-2A		
L14	2nd AM IF	16.5Ω	16.5Ω	32-4240A	16-6678	
L15	Ratio Det. Trans.	1.5Ω	.1Ω	32-4417		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PHILCO PART No.		
M1	Bayonet	6-8	.25	Blue	34-2064		Type #44
M2	Bayonet	6-8	.25	Blue	34-2064		Type #44
M3	Bayonet	6-8	.25	Blue	34-2064		Type #44

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	PHILCO PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M4	76-4649					

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M5	Switch	42-1910	Band
M6	3 Gang Var. Cap.	31-2750	(15-570MMF, 28-584MMF, 21-402MMF)
A6	Padder	31-6473-7	BC Osc. Adj.
A10	Padder	31-6473-6	BC Ant. Adj.
A17	Trimmer	31-6511	FM Osc. Adj.
	Knob	54-4718-6	
	Dial Scale	54-5068	Model 50-1721
	Dial Scale	54-4751-1	Model 50-1723
	Dial Scale	54-5067	Model 50-1725

RCA VICTOR
MODELS 9EY31, 9EY32

RCA VICTOR
MODELS 9EY31, 9EY32

RCA VICTOR 9EY31

TRADE NAME	RCA Victor, Models 9EY31, 9EY32
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, New Jersey
TYPE SET	AC Operated Record Player with 3 Tube Amplifier
TUBES (THREE)	Types 12SQ7 AF Amp., 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .23 Amp. at 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER SEE RCA VICTOR MODEL RP168 PHOTOFACT SET #72 FOLDER 10

RCA VICTOR
MODELS 9EY31, 9EY32

PROPERTY OF
L. F. E. ANKENBRANDT
3924 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR
MODEL 9EY31

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Audio Amp.	12SQ7	12SQ7	8Q	
V2	Power Output	50L6GT	50L6GT	7AC	
V3	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	75050	AFH1010D4A			D11334	■ Filter
B	50	150						● Filter
C	20	25						▲ Output Cathode Bypass
C2	.05	600	70615	P688-05			TM-15	Phono Isolation
C3	.1	200	73784	P288-1			TM-1	Line Isolation
C4	.005	200	71926	P688-005	D6-502	811-005	TM-25	Tone Compensation
C5	.02	200	71928	P488-02			TM-12	Audio Coupling
C6	.002	200	73750	P688-002	D6-202	GP2M-002	TM-22	Tone Compensation
C7	.01	200	71923	P488-01	D6-103	821-01	TM-11	Audio Coupling
C8	.01	200	71923	P488-01	D6-103	821-01	TM-11	Output Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	75051	Q13-133X	AT-78	BTSK-66-S	Volume control tapped at 125KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R1A per instructions
R2A	500KΩ	½	75052	Q13-133	AM-60-Z	BSK-60	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R2A per instructions

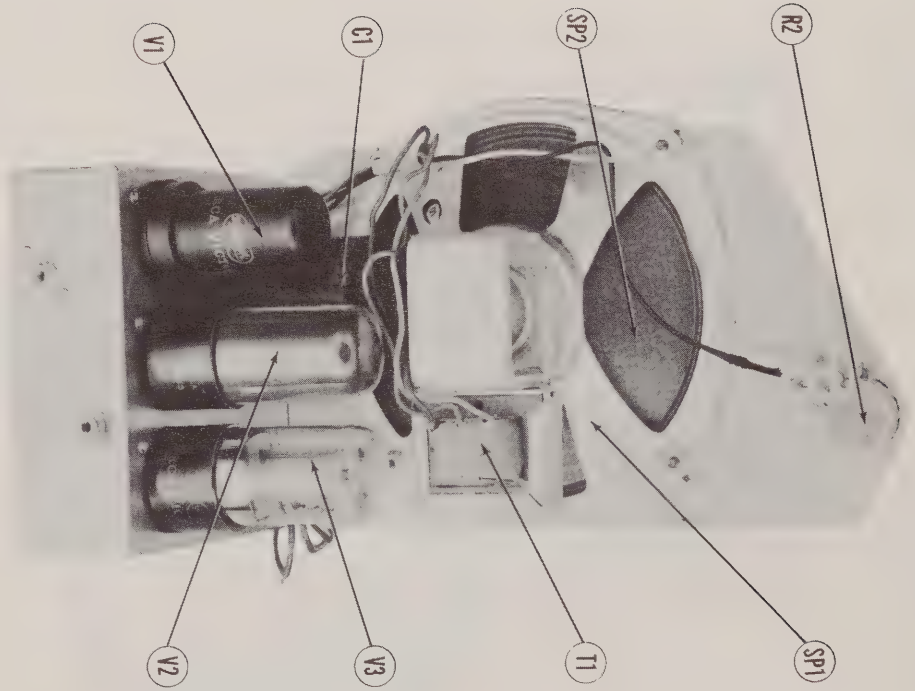
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
R3	1 Meg.	½		BTS-1 Meg.	Phono Input Shunt
R4	33KΩ	½		BTS-33K	Tone Compensation
R5	10 Meg.	½		BTS-10 Meg.	AF Amp. Grid
R6	270KΩ	½		BTS-270K	AF Amp. Plate
R7	470KΩ	½		BTS-470K	Tone Compensation
R8	470KΩ	½		BTS-470K	Output Grid
R9	220Ω	½		BW-½-220	Output Cathode-Wire Wound
R10	560Ω	½		BTS-560	Filter
R11	33Ω	½	73237		Surge Limiter-Wire Wound
R12	150Ω	5	48676	AB-150	Filament String-Wire Wound

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2.4KΩ	3Ω	400Ω	1.1Ω	75054	A-3330 ①	A-3031 ①	RO-3 ①	① Bend mounting tabs down, file out slots and remount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			RCA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	95053		52A1 *	* Remount output transformer.
	PM	3Ω				
SP2	CONE DIA.	V. C. DIA.				
	5 1/8"	9/16"				

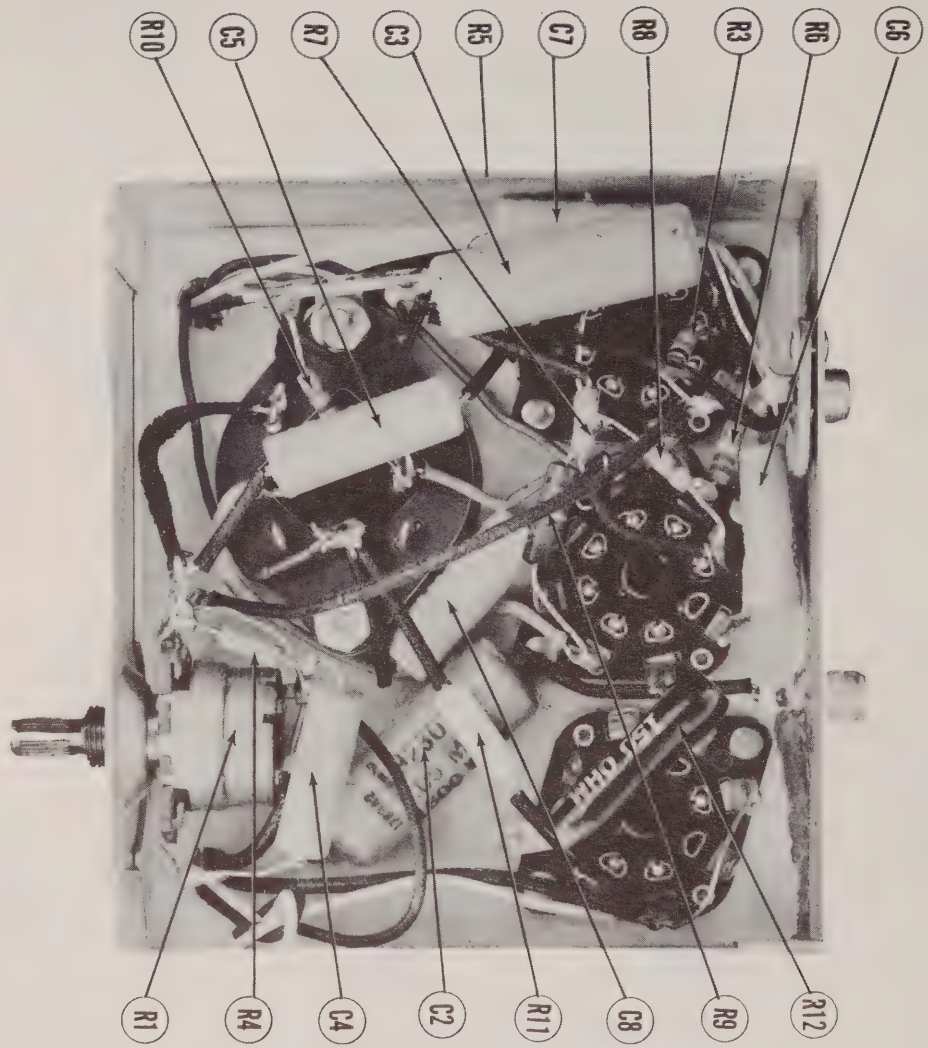
PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	742625	CQ-J or GC-J	Q-33 "G"	W21AR	A65MG	

MISCELLANEOUS

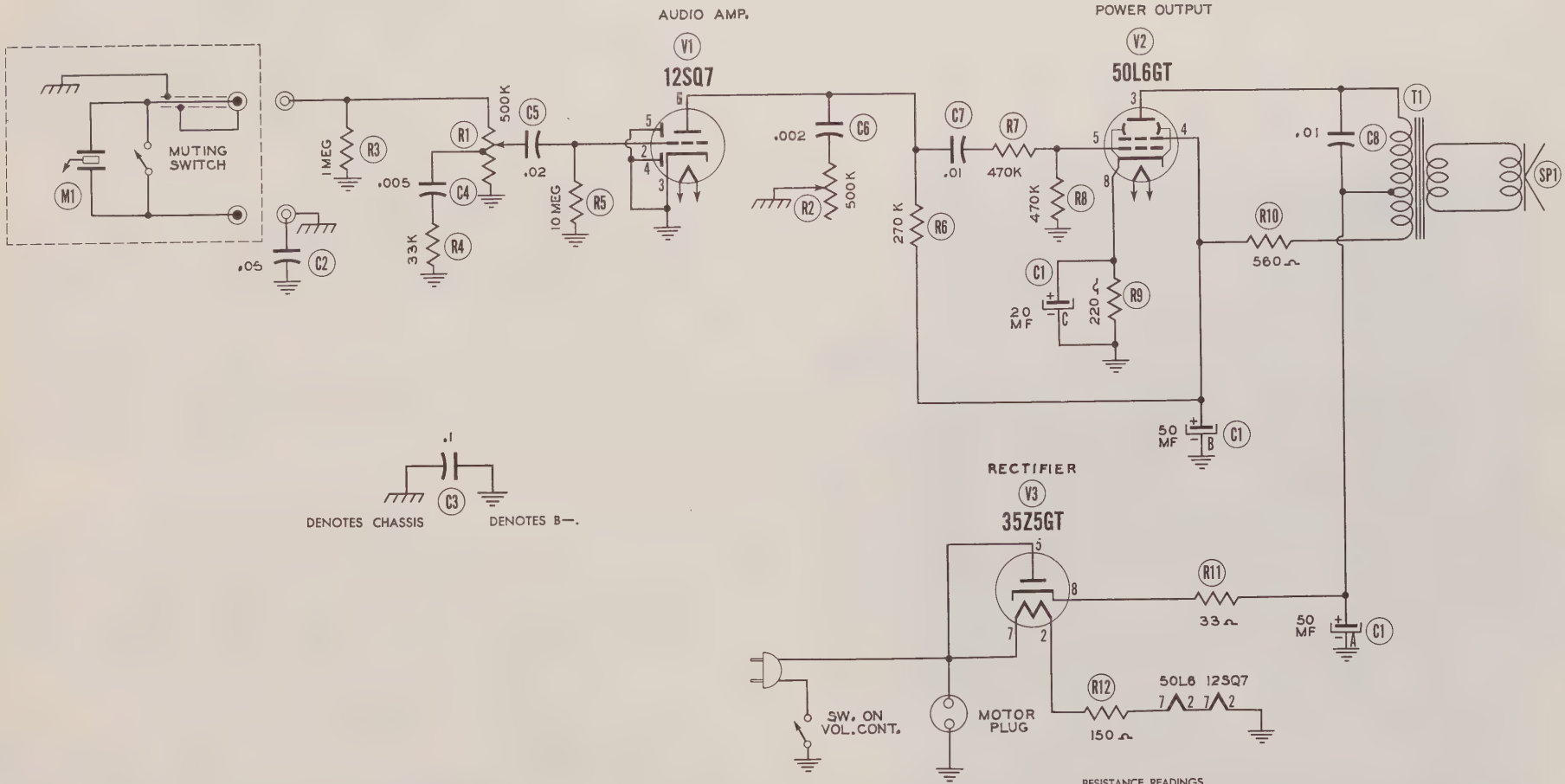
ITEM No.	PART NAME	RCA PART No.	NOTES
	Knob	75056	

CHASSIS—BOTTOM VIEW



RCA VICTOR MODEL 9EY31

RCA VICTOR MODEL 9EY31



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SQ7	0V.	-.7VDC	0V.	0V.	0V.	75VDC	12VAC	0V.
V 2	50L6GT	0V.	12VAC	115VDC	130VDC	0V.	0V.	58VAC	10VDC
V 3	35Z5GT	0V.	82VAC	90VAC	0V.	117VAC	0V.	117VAC	130VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SQ7	▲0Ω	10 Meg.	0Ω	0Ω	0Ω	†300KΩ	13Ω	0Ω
V 2	50L6GT	0Ω	13Ω	†430Ω	†670Ω	470KΩ	Inf.	62Ω	220Ω
V 3	35Z5GT	Inf.	212Ω	220Ω	Inf.	225Ω	Inf.	22Ω	150KΩ

▲ MEASURED FROM CHASSIS.
† MEASURED FROM PIN 8 OF V3.

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR
MODEL 9Y51 (Ch. RC-1077)

RCA VICTOR
MODEL 9Y51 (Ch. RC-1077)

RCA VICTOR
MODEL 9Y51 (Ch. RC-1077)

RCA VICTOR MODEL 9Y51

TRADE NAME	RCA Victor, Model 9Y51 (Ch. RC-1077)
MANUFACTURER	RCA Victor, Div. Radio Corp. of America, Camden, New Jersey
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AV6 DET-AVC-AF, 50L6GT Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .26 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully open and set the pointer to the last reference mark at the high frequency end of the dial (this must be done with the chassis in place in the cabinet.)

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on left hand section of tuning gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully closed.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	REPLACE THE CHASSIS, ANTENNA AND RECORD CHANGER IN CABINET.						
3.		Loop	1630KC	Tuning gang fully open	Across voice coil	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		Loop	600KC	600KC	"	A6	Rock tuning gang while adjusting A6 for maximum output.
5.		Loop	1400KC	1400KC	"	A7	Adjust for maximum output.

FOR SERVICE INFORMATION ON RECORD CHANGER SEE RCA VICTOR MODEL RP-168
PHOTOFACT SET #72 FOLDER #10

PROPERTY OF
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DENVER, COLORADO

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR
MODEL 9Y51

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	DET.-AVC-AF	12AV6	12AV6	7BT	
V4	Power Output	50L6GT	50L6GT	7AC	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	120	150	74678					▪ Filter
B	120	150						■ Filter
C	40	25						▲ Output Cathode Bypass
C2	150	500	39632	1468-00015	D6-151	GP2K-150	1FM-315	Isolation
C3	.05	400	73553	P488-05			TM-15	AVC Filter
C4	.05	400	73553	P488-05			72P51	Line Isolation
C5	56		71924	GP5lK	D6-560	GP lK-56	1FM-45	Osc. Grid Cap.
C6	.05	400	73553	P488-05			TM-15	Phono Isolation
C7	.001	200	72792	P688-001	D6-102	GP2L-001	TM-21	Tone Compensation
C8	.001	400	73186	P688-001	D6-102	GP2L-001	TM-21	Audio Coupling
C9	68		74884	GP68K	D6-680	GPlK-68	MS-47	Tone Compensation
C10	.005	200	71926	P688-005	D6-502	811-005	TM-25	Tone Compensation
C11	.02	200	71928	P488-02			TM-12	Audio Coupling
C12	.0025	400	70602	P688-0022	D6-252	GP2M-0025	1FM-325	Tone Compensation
C13	120	500	39630	1468-00015	D6-120	GP2K-120	1FM-315	AF Amp. Plate Bypass
C14	.01	400	72827	P488-01	D6-103	821-01	TM-11	Audio Coupling
C15	.005	400	72791	P688-005	D6-502	811-005	TM-25	Output Plate Bypass
C16	.05	400	73553	P488-05			TM-15	Rect. Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	2 Meg.	½	74702	Q13-139X	T-120	BT-79	Volume control tapped at 400KΩ

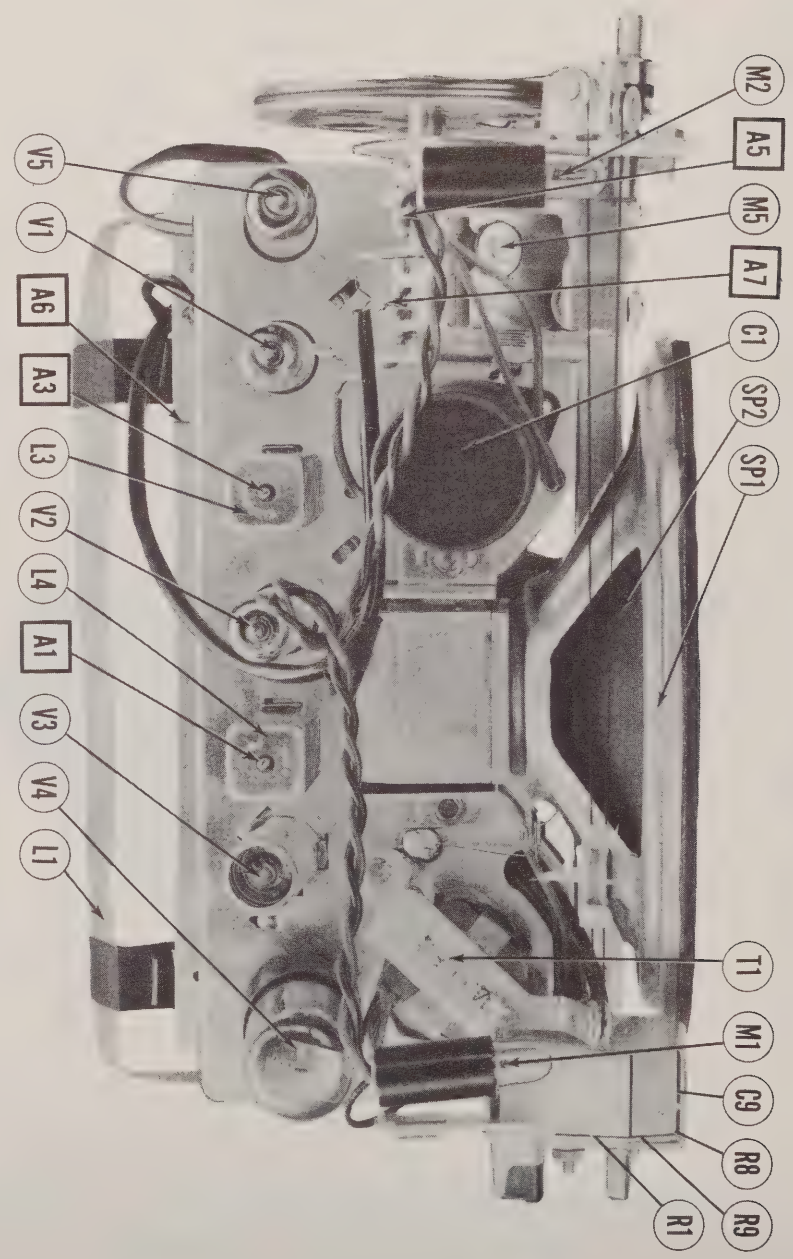
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	270Ω	½			Osc. Coil Shunt
R3	22KΩ	½		BTS-22K	Osc. Grid
R4	150Ω	½		BW-½-150	IF Cathode
R5	3.3 Meg.	½		BTS-3.3 Meg.	AVC Network
R6	270KΩ	½		BTS-270K	Diode Load
R7	270KΩ	½		BTS-270K	Diode Load
R8	2.2 Meg.	½		BTS-2.2 Meg.	Tone Compensation
R9	56KΩ	½		BTS-56K	Tone Compensation
R10	10 Meg.	½		BTS-10 Meg.	AF Amp. Grid
R11	220KΩ	½		BTS-220K	AF Amp. Plate
R12	470KΩ	½		BTS-470K	Output Grid
R13	150Ω	1½		BW-½-150	Output Cathode
R14	1000Ω	1		BW-1-1000	Filter
R15	33Ω	½	72313		Surge Limiter-Fuse Type
R16	82KΩ	½		BTS-82K	Tone Compensation
R17	2.2 Meg.	½		BTS-2.2 Meg.	Phono Input Shunt

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	3.1KΩ	3.6Ω	360Ω Tap ④ 23Ω	.7Ω	74677	A-3330 ①	A-3031 ①	RO-3 ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA RCA PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
SP1	FIELD	V. C. IMP.	74706	ST-803 ③ MOD. P525-V	57A1 ② ③	② Use universal mounting bracket provided. ③ Remount output transformer.
	PM	3.6Ω				
	CONE DIA.	V. C. DIA.				
SP2	7"x 4 13/16"	9/16"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.
L1	Loop Ant.	1.5Ω		74703	
L2	Osc. Coil	1Ω	5.2Ω	74448	14-1073
L3	1st IF	16Ω	16Ω	73488	16-6678
L4	2nd IF	15Ω	15Ω	73037	16-6678

DIAL LIGHTS

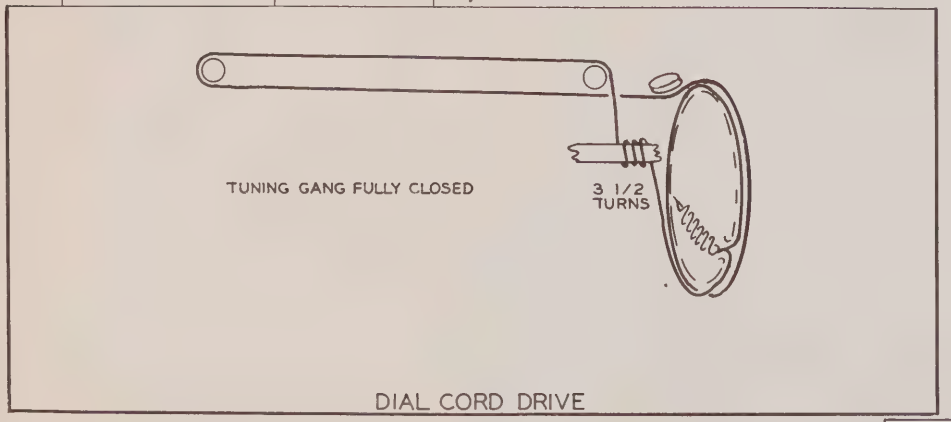
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RCA PART No.		NOTES
M1	Bayonet	3.2	.16		71116		Type #1490
M2	Bayonet	3.2	.16		71116		Type #1490

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA RCA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	REMARKS
M3	74625	CQ-J or GC-J	"Q" "G"	W21AR	A65MG	

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M4	Switch	74676	Phono-Radio-Tone
M5	2 Gang Var. Cap.	74704	(35-555MMF, 20-195MMF)
	Cabinet	Y2137	
	Dial Scale	74722	
	Dial Pointer	74709	
	Knob	74711	Phono-Radio-Tone
	Knob	74710	Volume or Tuning
	Knob	74210	Reject

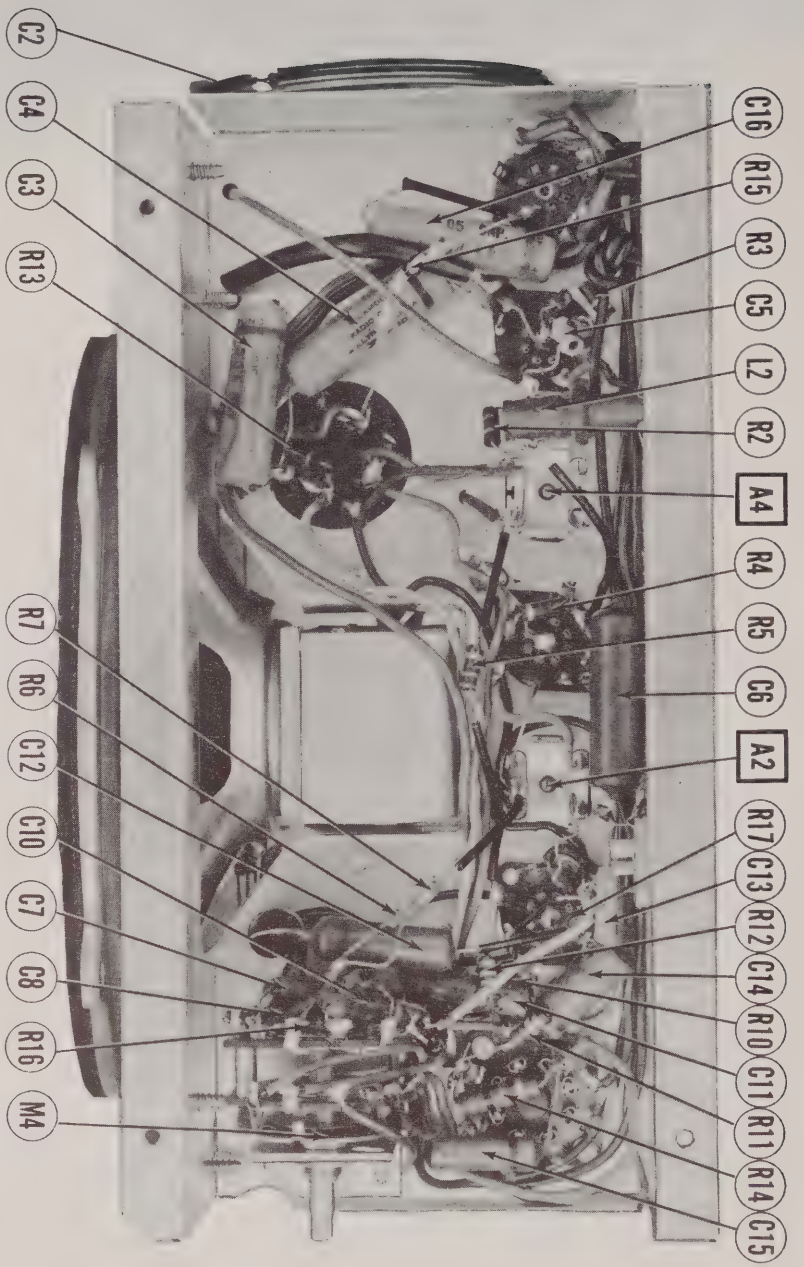


DIAL CORD DRIVE

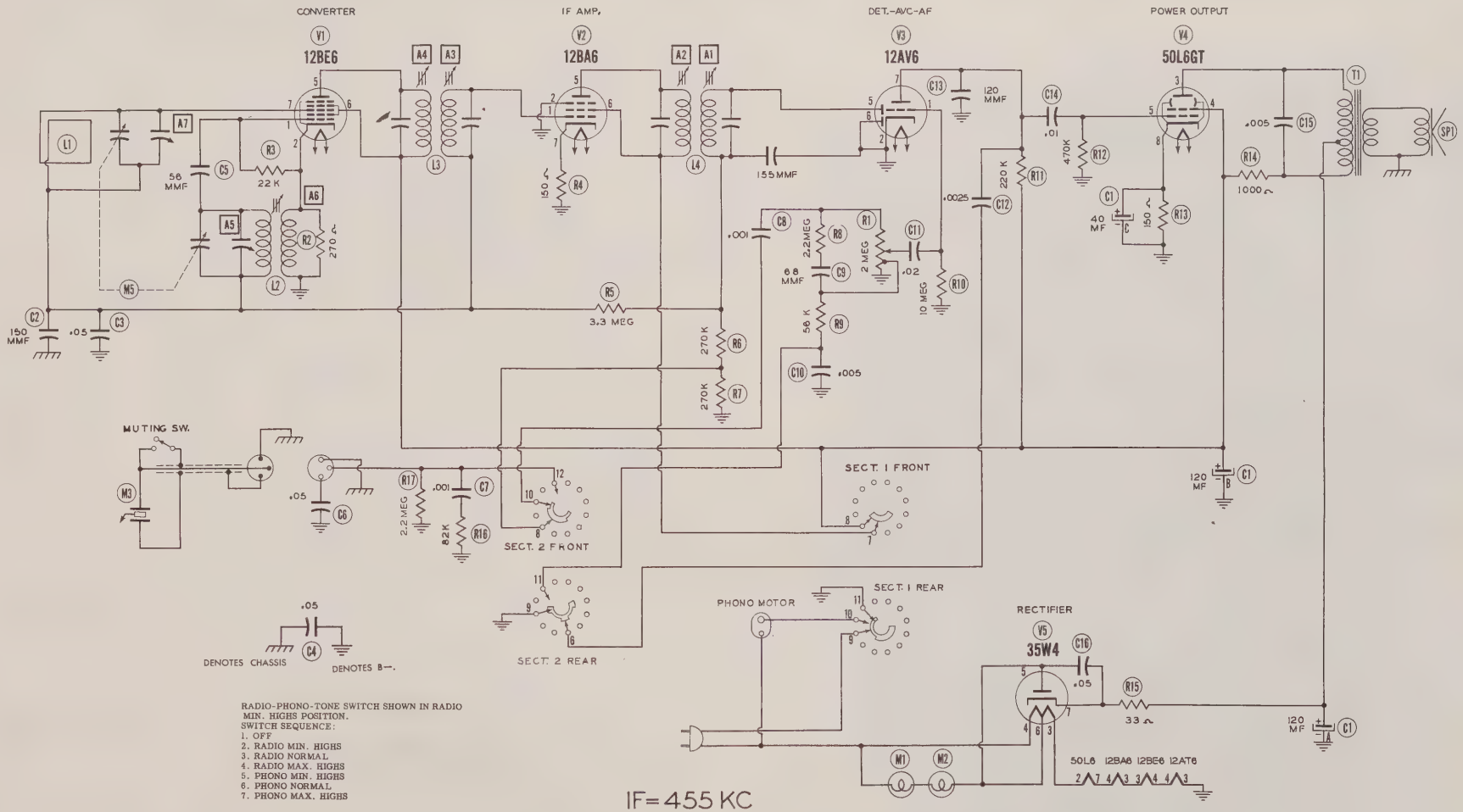
SET 98 FOLDER 11

RCA VICTOR MODEL 9Y51

CHASSIS—BOTTOM VIEW



RCA VICTOR MODEL 9Y51



RADIO-PHONO-TONE SWITCH SHOWN IN RADIO MIN. HIGHS POSITION.
SWITCH SEQUENCE:
1. OFF
2. RADIO MIN. HIGHS
3. RADIO NORMAL
4. RADIO MAX. HIGHS
5. PHONO MIN. HIGHS
6. PHONO NORMAL
7. PHONO MAX. HIGHS

IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BE6	8- 68VDC	0V.	24VAC	12VAC	95VDC	95VDC	-.1VDC	
V 2	12BA6	-.1VDC	0V.	24VAC	38VAC	95VDC	95VDC	1.3VDC	
V 3	12AV6	-.8VDC	0V.	0V.	12VAC	-.6VDC	0V.	60VDC	
V 4	50L6GT	0V.	87VAC	100VDC	95VDC	0V.	117VDC	38VAC	5.8VDC
V 5	35W4	0V.	0V.	87VAC	117VAC	112VAC	112VAC	120VDC	

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BE6	22KΩ	.8Ω	24Ω	13Ω	†1KΩ	†1KΩ	3.5 Meg.	
V 2	12BA6	3.5 Meg.	0Ω	24Ω	38Ω	†1KΩ	†1KΩ	150Ω	
V 3	12AV6	10 Meg.	0Ω	0Ω	13Ω	500KΩ	0Ω	†220KΩ	
V 4	50L6GT	Inf.	90Ω	†400Ω	†1KΩ	470KΩ	†60Ω	38Ω	150Ω
V 5	35W4	Inf.	0Ω	90Ω	120Ω	110Ω	110Ω	100KΩ	

† MEASURED FROM PIN 7 OF V5.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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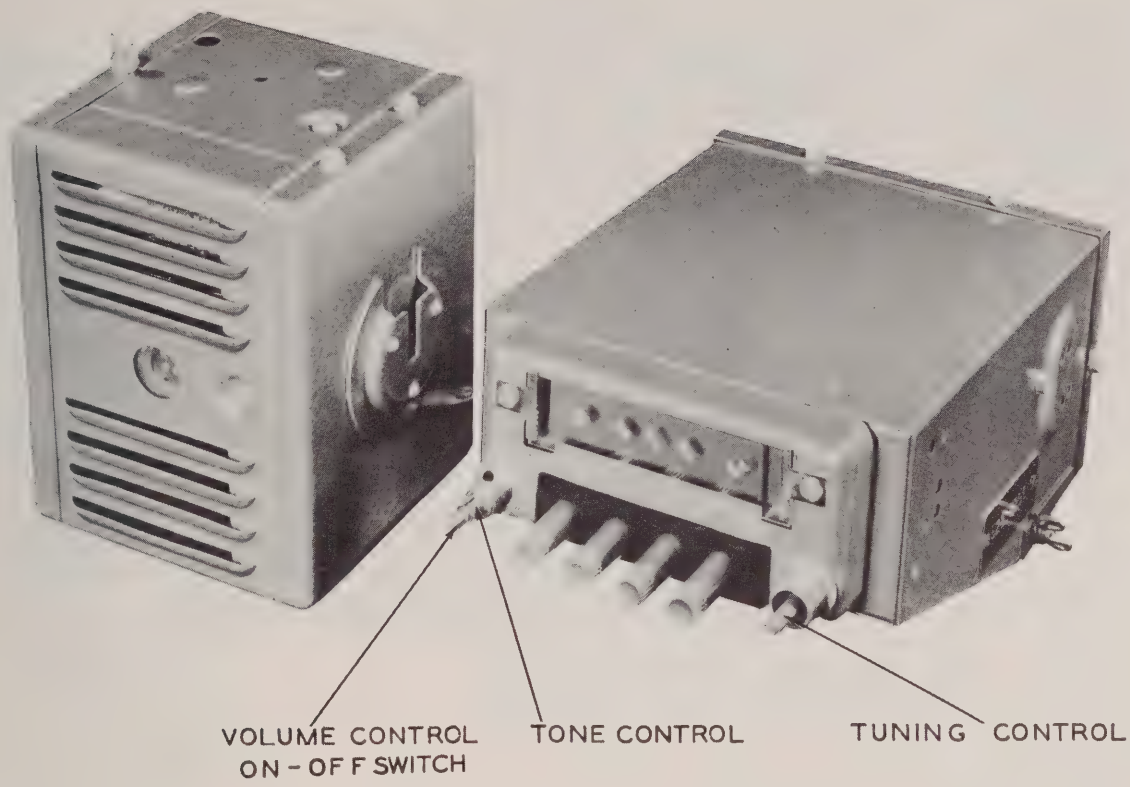
98-11

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE
MODEL 6295 (Ch. 528.6295)

SILVERTONE
MODEL 6295 (Ch. 528.6295)



SILVERTONE
MODEL 6295 (Ch. 528.6295)

SILVERTONE MODEL 6295

TRADE NAME	Silvertone, Model 6295 (Ch. 528.6295)
SUPPLIER	Sears, Roebuck and Co., 925 S. Homan St., Chicago, Illinois
TYPE SET	Battery Operated Universal Automotive Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 DET-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	6 Volts Storage Battery — RATING 5.5 Amp. at 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V2). Low side to chassis.	262KC (400 ∿ Mod.)	Tuning gang fully out	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	30MMF & 70MMF	Connect 30MMF across antenna connector and chassis. Connect 70MMF in series with high side of generator output and antenna connector. Low side of generator to chassis.	1610KC	"	"	A5	"
3.	"	"	1400KC	Tune for max. output.	"	A6, A7	"

PUSH BUTTON ADJUSTMENTS

DEPRESS PUSH BUTTON AS FAR AS IT WILL GO. TUNE IN THE DESIRED STATION BY TURNING THE PUSHBUTTON. REPEAT THIS PROCEDURE FOR EACH BUTTON:

PROPERTY OF
L. F. HOFFENSHIP
3041 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	DET-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6V6GT	6V6GT	7AC	
V6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	35	400	A18-294	AFH7I55H4A				▪ Filter
B	25	350						■ Filter
C	25	350						▲ Filter
D	20	25						Output Cathode Bypass
C2	.05	200	A16-197	P288-05			TM-15	AVC Filter
C3	5000		A16-177	BPD-5	D6-502	811-005	29C1	RF Cathode Bypass
C4	.05	400	A16-189	P488-05			TM-15	Decoupling
C5	.05	400	A16-189	P488-05			TM-15	Decoupling
C6	10		A15-197	GP10K	D6-100	GP1K-10	MS-41	RF Coupling
C7	270		A15-215	GP270K	D6-271	GP2K-270	MS-325	Fixed Trimmer
C8	50		A15-194	SI50KN750	DN-51	N750L-47	1FM-45	Osc. Grid Cap.
C9	220	500	A15-218	1469-0002	D6-221	GP2K-220	MS-32	Fixed Trimmer
C10	.01	400	A16-192	P488-01	D6-103	811-01	TM-11	Tone Compensation
C11	.005	600	A16-190	P688-005	D6-502	811-005	TM-25	Audio Coupling
C12	.01	400	A16-192	P488-01	D6-103	811-01	TM-11	Tone Compensation
C13	.5	100	A16-184				68P20	Hash Filter
C14	.02	600	A16-206	P688-02			TM-12	Audio Coupling
C15	.005	600	A16-190	P688-005	D6-502	811-005	TM-25	Output Plate Bypass
C16	5000		A16-177	BPD-5	D6-502	811-005	29C1	Output Plate Bypass
C17	5000		A16-177	BPD-5	D6-502	811-005	29C1	RF Bypass
C18	.2	400	A16-188	P488-22			TC-2	RF Bypass
C19	.007	1600	A16-207	P1688-0068			MB-27	Buffer
C20	.5	100	A16-184				68P20	Hash Filter
C21	.5	100	A16-184				68P20	Hash Filter

CONTROLS

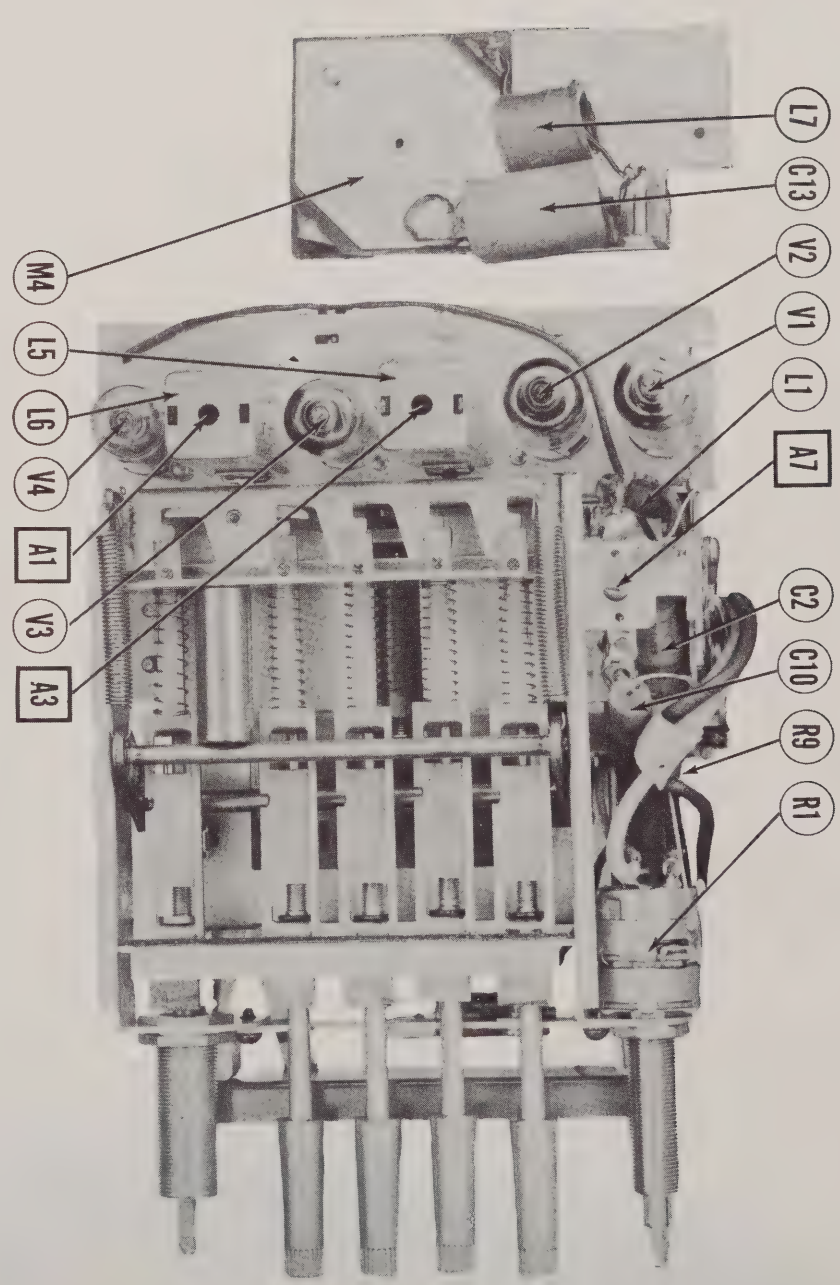
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	1/2-1/2		B13-133 *			Tone control - panel
B	250KΩ			B13-130X *			Volume control-rear-tapped at 125KΩ
C	Shaft End		A24-183	E-202 *		SBBT-520-S	Attach per instr. in "Concentrikit".
D	Switch			76-2 * #			Attach per instr. in "Concentrikit".
E	Sleeve						
	Bushing			S-4 * §			Attach per instr. in "Concentrikit".

* Additional parts to be used with "Concentrikit".
\# Connect both sections of switch in parallel.
§ Saw off bushing to same length as original.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R2	470Ω	1/2-1/2	A60-770	BTS-470	RF Cathode
R3	10KΩ	1/2-1/2	A60-760	BTS-10K	RF Plate
R4	1 Meg.	1/2-1/2	A60-668	BTS-1 Meg.	Conv. Grid
R5	22KΩ	1/2-1/2	A60-744	BTS-22K	Osc. Grid
R6	22KΩ	1	A60-773	BTA-22K	Screen Dropping
R7	2.2 Meg.	1/2-1/2	A60-726	BTS-2.2 Meg.	AVC Network
R8	47KΩ	1/2-1/2	A60-730	BTS-47K	Diode Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
R9	68KΩ	½	A60-775	BTS-68K	Tone Compensation
R10	10 Meg.	½	A60-728	BTS-10 Meg.	AF Amp. Grid
R11	220KΩ	½	A60-672	BTS-220K	AF Amp. Plate
R12	470KΩ	½	A60-731	BTS-470K	Output Grid
R13	270Ω	1	A60-754	BW-1-270	Output Cathode
R14	470Ω	1	A60-694	BW-1-470	Filter
R15	10KΩ	1	A60-698	BTA-10K	Filter
R16	100Ω	½	A60-752	BW-½-100	Hash Suppression
R17	100Ω	½	A60-752	BW-½-100	Hash Suppression
R18	1000Ω	½		BTS-1000	IF Cathode-See Note

Note. Some models use 470Ω resistor in this application.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @ 5.5A	460VCT .044ADC			C80-250	P-6301 ①	P-2970	

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.1KΩ	4Ω	255Ω	.4Ω	S84-383	A-3310	A-3026 ①	RO-301 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	4Ω	C79-376	ST-811 ②	69A2 ②	② Remount output transformer
B	PM	4Ω	C79-375	MOD. P69-T	7A21 ②	
	CONE DIA.	V. C. DIA.				
SP2A	6" x 9"	3/4"				
B	7"					

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
L1	Ant. Coil	.9Ω				
L2	Ant. Coil	10Ω				Part of tuner S84368
L3	RF Coil	10Ω				Part of tuner S84368
L4	Osc. Coil	.2Ω	5Ω			Part of tuner S84368
L5	1st IF	40Ω	40Ω	A10-537		
L6	2nd IF	40Ω	40Ω	A10-540		
L7	Hash Choke	0Ω		A33-229		
L8	Hash Choke	0Ω		A33-228		

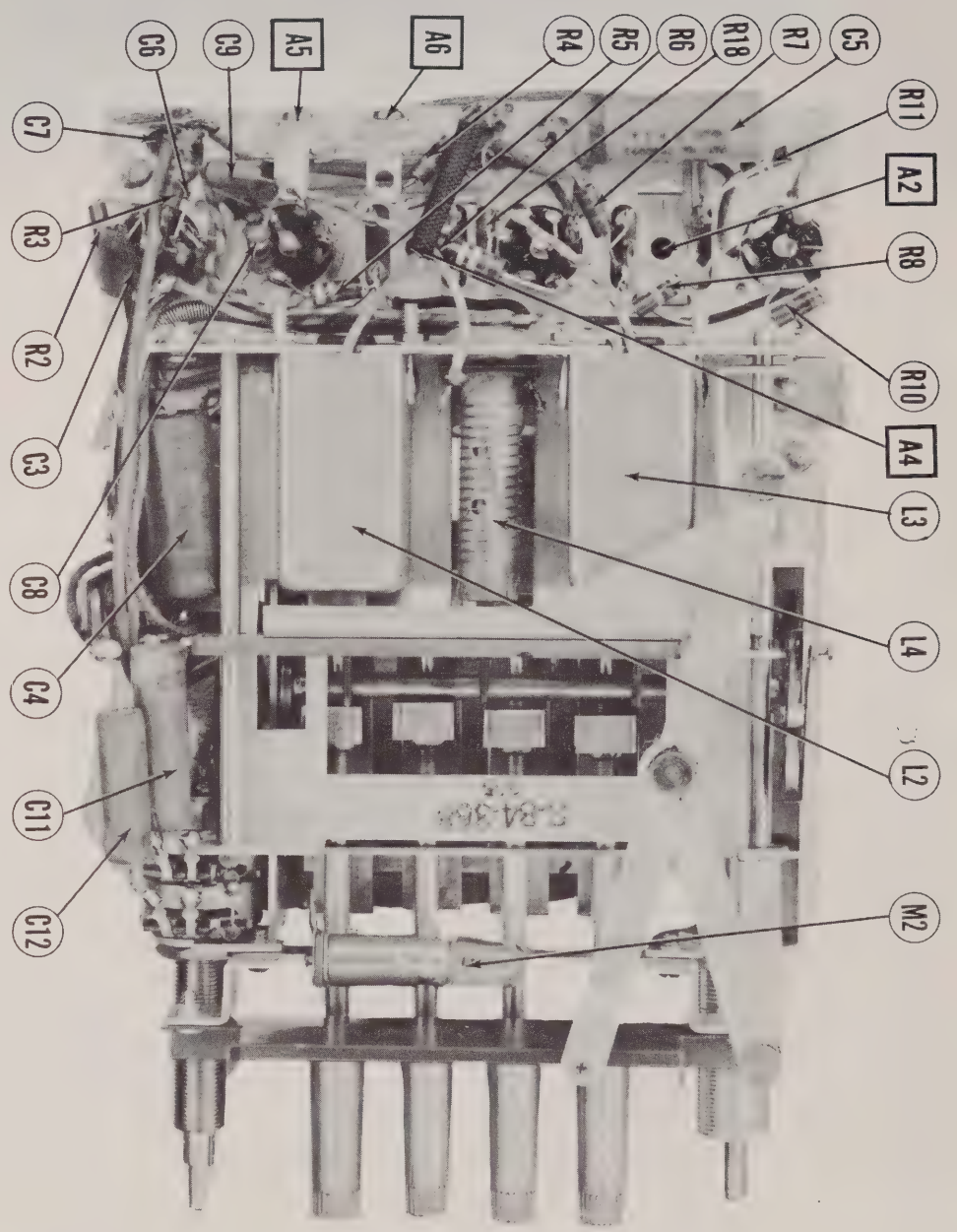
VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				SILVERTONE PART No.	AEROVOX PART No.	RADIART PART No.	
M1	Int.	6.3 VDC	115 ∿	A34-105	A-100	5301	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SILVERTONE PART No.		
M2	Bayonet	6-8	.25	Brown	A89-7		Type #47

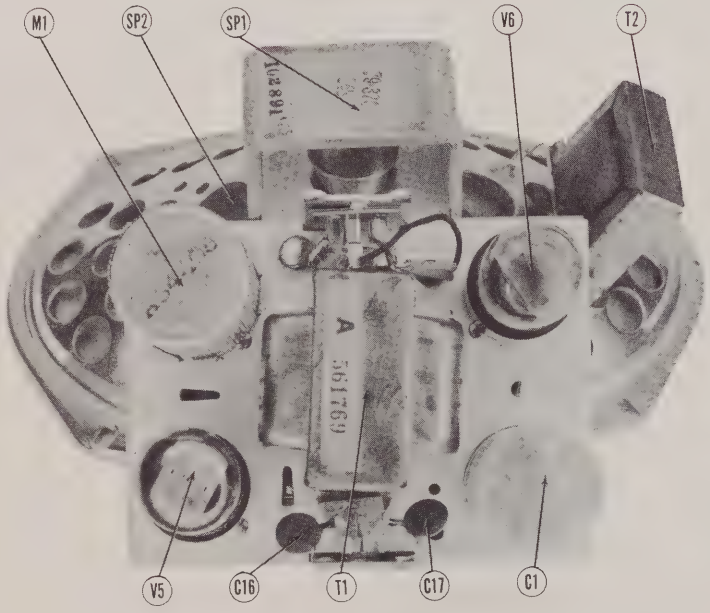
CHASSIS—BOTTOM VIEW

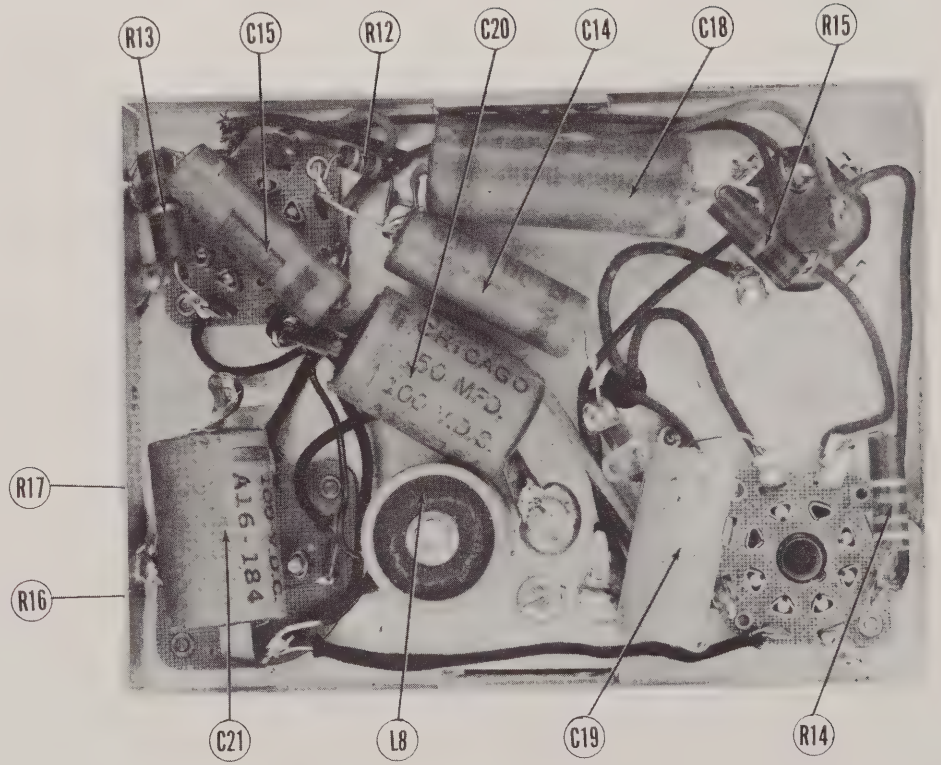


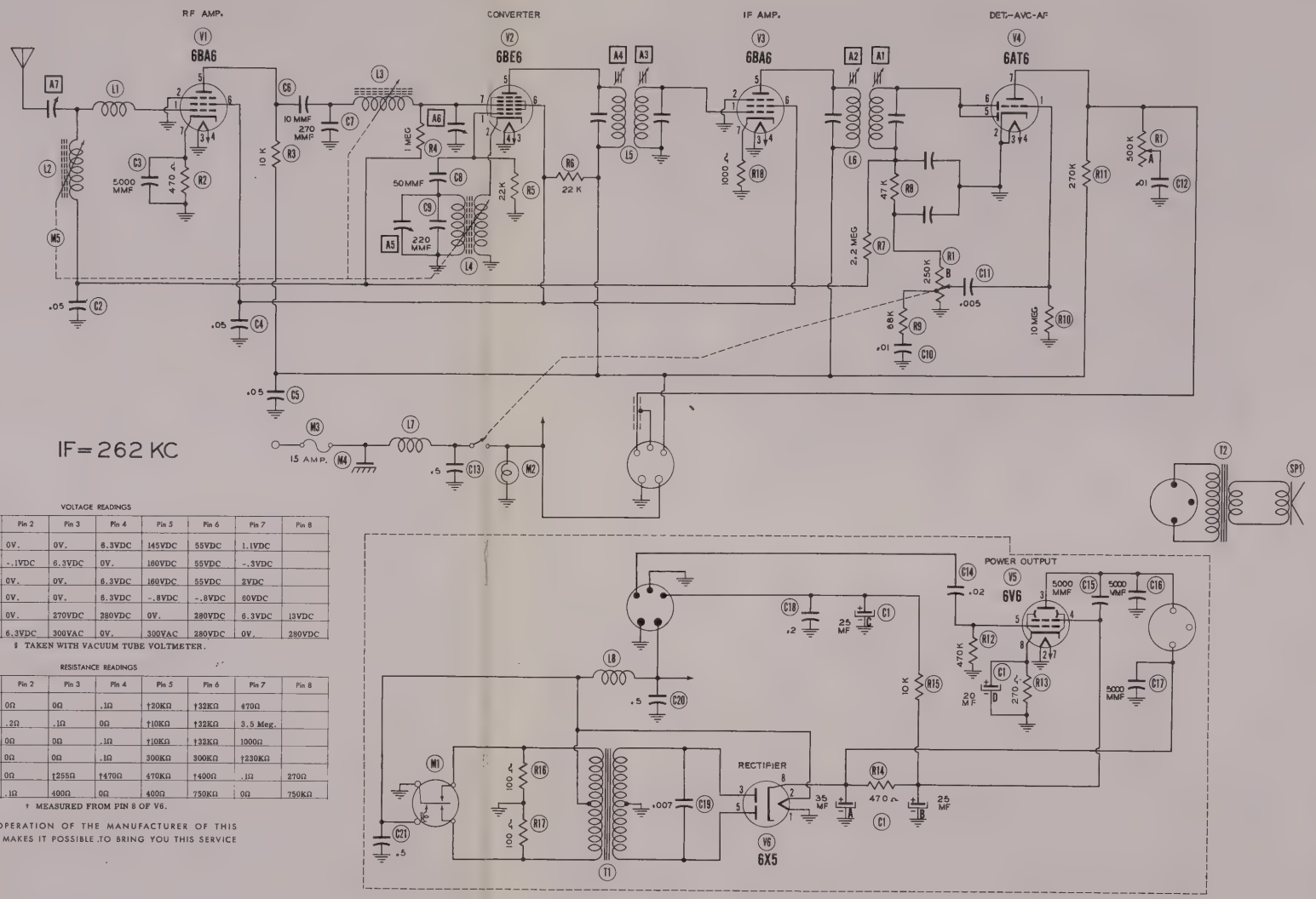
PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Fuse	A43-10	Type 3AG 15 Amp.
M4	Spark Plate		
A5	Dual Trimmer	A20-147	Osc. Adj.
A6			RF Adj.
A7	Trimmer	A20-148	Ant. Adj.
	Dial Scale	B67-547	
	Knob	B52-296	Tuning
	Knob	B52-297	Volume
	Knob	B52-298	Tone







VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	-.2VDC	0V.	0V.	6.3VDC	145VDC	55VDC	1.1VDC	
V 2	6BE6	§-5VDC	-.1VDC	6.3VDC	0V.	160VDC	55VDC	-.3VDC	
V 3	6BA6	-.1VDC	0V.	0V.	6.3VDC	160VDC	55VDC	2VDC	
V 4	6AT6	-.2VDC	0V.	0V.	6.3VDC	-.8VDC	-.8VDC	60VDC	
V 5	6V6GT	0V.	0V.	270VDC	280VDC	0V.	280VDC	6.3VDC	13VDC
V 6	6X5GT	0V.	6.3VDC	300VAC	0V.	300VAC	280VDC	0V.	280VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	2.5 Meg.	0Ω	0Ω	.1Ω	†20KΩ	†32KΩ	470Ω	
V 2	6BE6	22KΩ	.2Ω	.1Ω	0Ω	†10KΩ	†32KΩ	3.5 Meg.	
V 3	6BA6	40Ω	0Ω	0Ω	.1Ω	†10KΩ	†32KΩ	1000Ω	
V 4	6AT6	10 Meg.	0Ω	0Ω	.1Ω	300KΩ	300KΩ	†230KΩ	
V 5	6V6GT	0Ω	0Ω	†255Ω	†470Ω	470KΩ	†400Ω	.1Ω	270Ω
V 6	6X5GT	0Ω	.1Ω	400Ω	0Ω	400Ω	750KΩ	0Ω	750KΩ

† MEASURED FROM PIN 8 OF V6.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PHOTOFACT* Folder

WESTINGHOUSE MODELS
H-600T16 (CH. V-2150-61, A, B),
H-601K12, H-602K12 (CH. V-2153-1)

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MODEL H-600T16

WESTINGHOUSE MODELS
H-600T16 (CH. V-2150-61, A, B),
H-601K12, H-602K12 (CH. V-2153-1)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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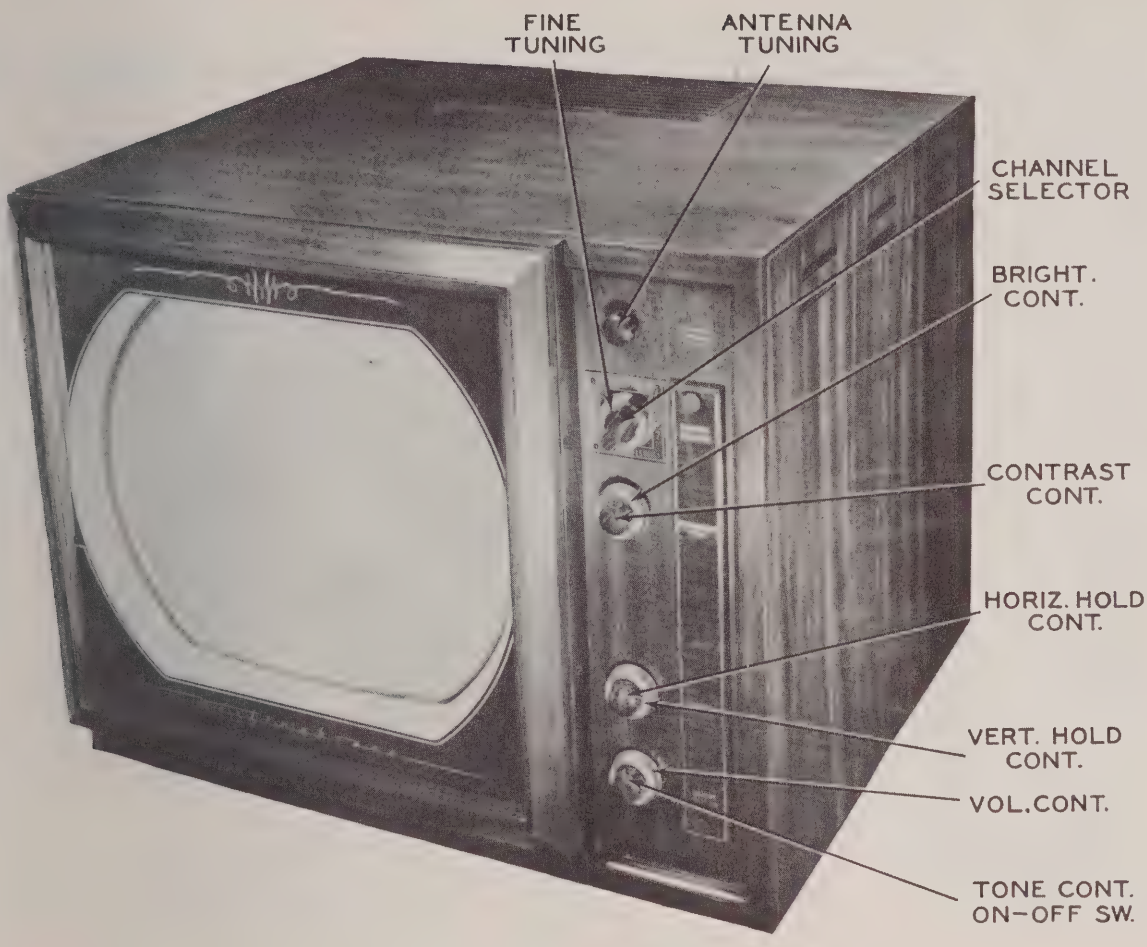

WESTINGHOUSE MODELS H-600T16 (Ch. V-2150-61, A, B), H-601K12, H-602K12 (Ch. V-2150-41)

WESTINGHOUSE MODEL H-600T16

TRADE NAME	Westinghouse, Models H-600T16 (Ch. V-2150-61, A, B), H-601K12, H-602K12, (Ch. V-2150-41)
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury, Pennsylvania
TYPE SET	Television Receiver
TUBES	Thirty
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	2.4 Amp. at 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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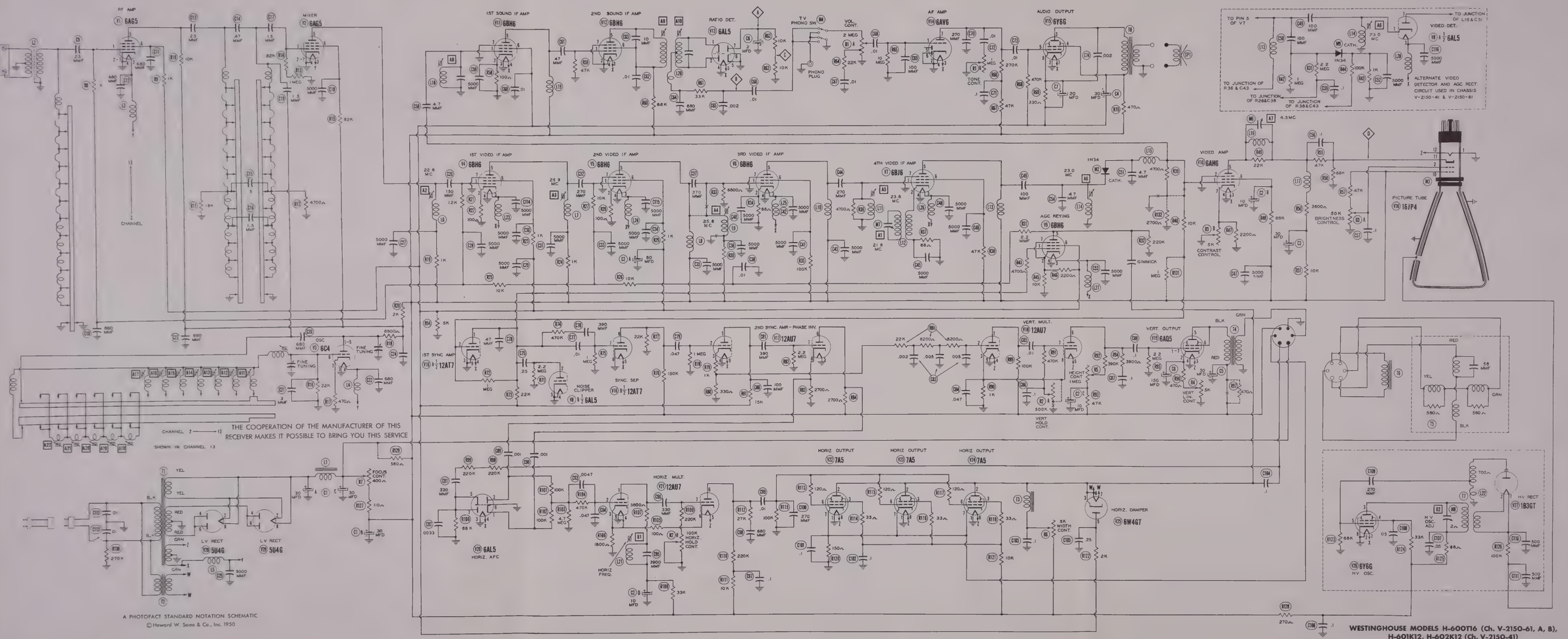
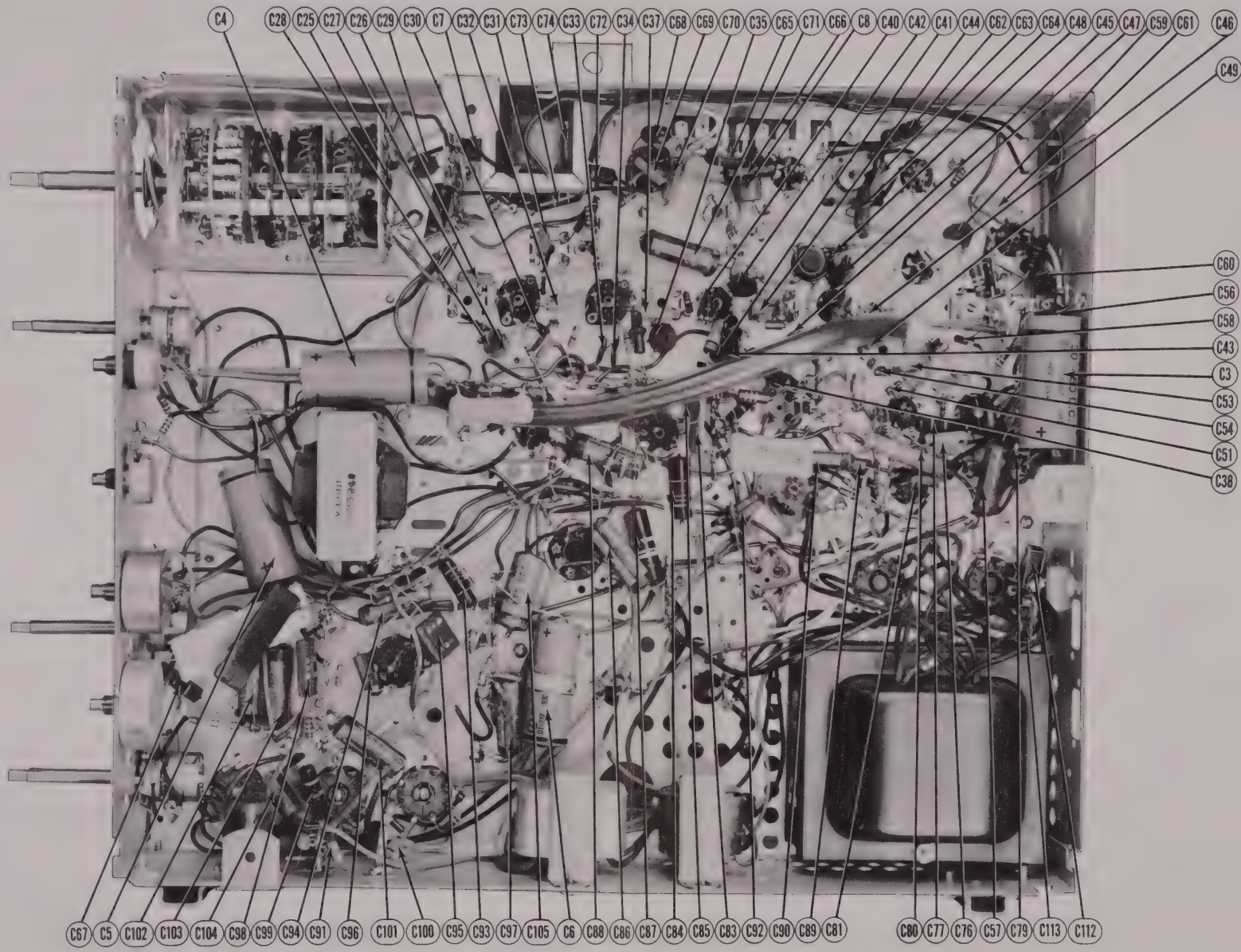
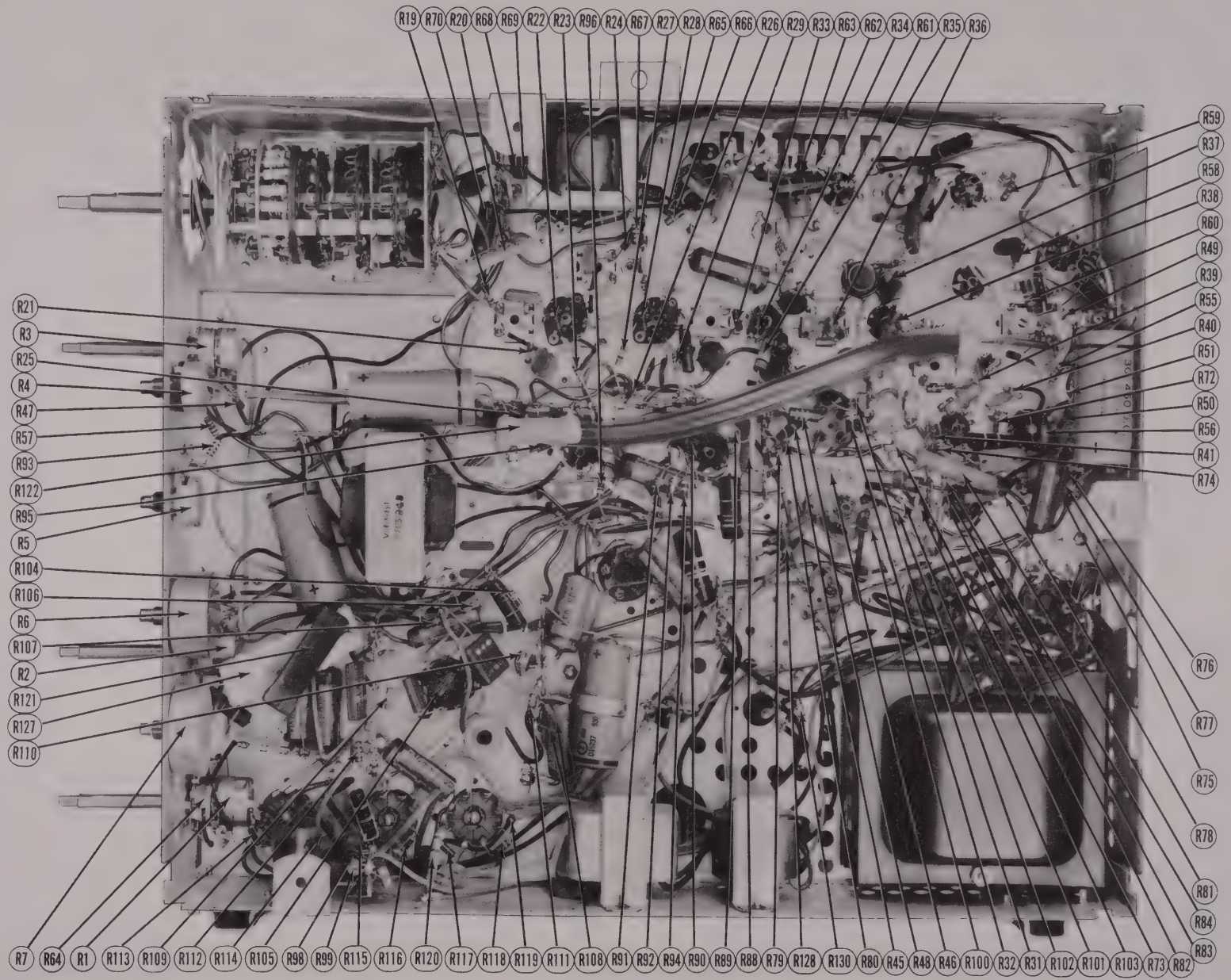


WESTINGHOUSE MODELS H-600T16 (Ch. V-2150-61, A, B), H-601K12, H-602K12 (Ch. V-2150-41)

WESTINGHOUSE MODELS H-600T16 (Ch. V-2150-61, A, B), H-601K12, H-602K12 (Ch. V-2150-41)



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AG5	6AG5	7BD	
V2	Mixer	6AG5	6AG5	7BD	
V3	Oscillator	6C4	6C4	6BG	
V4	1st Video IF	6BH6	6BH6	7CM	
V5	2nd Video IF	6BH6	6BH6	7CM	
V6	3rd Video IF	6BH6	6BH6	7CM	
V7	4th Video IF	6BJ6	6BJ6	7CM	
V8	Video Det. -Noise Clipper	6AL5	6AL5	6BT	Used in chassis V-2150-61, 61B only.
V9	AGC Keying	6BH6	6BH6	7CM	Used in chassis V-2150-61A, 61B only.
V10	Video Amp.	6AH6	6AH6	7BK	
V11	1st Sound IF	6BH6	6BH6	7CM	
V12	2nd Sound IF	6BH6	6BH6	7CM	
V13	Ratio Det.	6AL5	6AL5	6BT	
V14	AF Amp.	6AV6	6AV6	7BT	
V15	Audio Output	6Y6G	6Y6G	7AC	
V16	1st Sync. Amp. - Sync. Sep.	12AT7	12AT7	9A	
V17	2nd Sync. Amp. - Phase Inv.	12AU7	12AU7	9A	
V18	Vert. Mult.	12AU7	12AU7	9A	
V19	Vert. Output	6AQ5	6AQ5	7BZ	
V20	Hor. AFC	6AL5	6AL5	6BT	
V21	Hor. Mult.	12AU7	12AU7	9A	
V22	Hor. Output	7A5	7A5	6AA	
V23	Hor. Output	7A5	7A5	6AA	
V24	Hor. Output	7A5	7A5	6AA	
V25	Hor. Damper	6W4GT	6W4GT	4CG	
V26	HV Osc.	6Y6G	6Y6G	7AC	
V27	HV Rect.	1B3GT	1B3GT	3C	
V28	LV Rect.	5U4G	5U4G	5T	
V29	LV Rect.	5U4G	5U4G	5T	
V30A	Picture Tube	16JP4	16JP4	12D	Used in model H-600T16.
B	Picture Tube	12LP4	12LP4	12D	Used in models H-601K12, H-602K12.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: WESTINGHOUSE PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	450	V-6978	E4C206			TVL-314	▲ Filter
B	30	450						■ Filter
C	30	450						▲ Filter
C2A	80	400	V-6977	AF16222J			TVL-410	▲ Filter
B	10	400						■ V. Output Screen Bypass
C	10	400						▲ Vert. MV Plate Decoupling
D	10	400						Hor. MV Plate Decoupling
C3	30	450	V-6570	PRS450/30			TVA-23	V. Output Plate Decoupling
C4	30	450	V-6570	PRS450/30			TVA-23	Output Decoupling
C5	30	450	V-6570	PRS450/30			TVA-23	Vert. Output Decoupling
C6	150	50	V-9009-1	PRS50/100			TVA-16	Vert. Output Cath. Bypass
				PRS50/50			TVA-17	
C7	20	25	V-3236	PRS25/25			TVA-6	Output Cathode Bypass
C8	2	50	V-4880	PRS150/4			TVA-12	Stabilizing Cap.
C9	25			GP25K	D6-250	GP1K-25		RF Coupling
C10	680			GP680M	D6-681	GP2K-680		AGC Filter
C11	680			GP680M	D6-681	GP2K-680		RF Screen Bypass
C12	680			GP680M	D6-681	GP2K-680		RF Filament Bypass
C13	25			GP25K	D6-250	GP1K-25		RF Coupling
C14	.47							RF Coupling
C15	.5				D2-.5			RF Coupling
C16	1.5			C11.5CNPO	D2-1.5	NPOK-1.5		RF Coupling
C17	15			GP15K	D6-150	GP1K-15		RF Coupling
C18	5000			BPD-5		811-005	29C1	Mixer Screen Bypass
C19	1.5			C11.5CNPO	D2-1.5	NPOK-1.5		Osc. Coupling
C20	680			GP680M	D6-681	GP2K-680		Osc. Feedback
C21	3			CN3DN150		N150K-3		Fixed Trimmer
C22	680			GP680M	D6-681	GP2K-680		Osc. Filament Bypass
C23	680			GP680M	D6-681	GP2K-680		RF Bypass
C24	680			GP680M	D6-681	GP2K-680		RF Bypass
C25	5000			BPD-5	D6-502	811-005	29C1	Filament Bypass
C26	150	500	RCM20B151K	1468-00015	D6-151	GP2K-150	1FM-315	IF Coupling
C27	5000		V-5596	BPD-5	D6-502	811-005	29C1	Mixer Plate Decoupling
C28	5000		V-5596	BPD-5	D6-502	811-005	29C1	AGC Filter
C29	5000		V-5596	BPD-5	D6-502	811-005	29C1	RF Bypass †
C30	5000		V-5596	BPD-5	D6-502	811-005	29C1	1st V. IF Screen Bypass
C31	5000		V-5596	BPD-5	D6-502	811-005	29C1	1st V. IF Plate Decoupling
C32	270	500	RCM20B271K	1468-00025	D6-271	GP2K-270	1FM-325	IF Coupling ‡
C33	5000		V-5596	BPD-5	D6-502	811-005	29C1	AGC Filter
C34	5000		V-5596	BPD-5	D6-502	811-005	29C1	2nd V. IF Screen Bypass
C35	5000		V-5596	BPD-5	D6-502	811-005	29C1	2nd V. IF Plate Decoup. §
C36	5000		V-5596	BPD-5	D6-502	811-005	29C1	2nd V. IF Plate Dec. ♦
C37	270	500	RCM20B271K	1468-00025	D6-271	GP2K-270	1FM-325	IF Coupling
C38	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	AGC Filter †
C39	.1	400	V-6023-4104M	P488-1			TM-1	AGC Filter #
C40	5000		V-5596	BPD-5	D6-502	811-005	29C1	3rd V. IF Cath. Bypass
C41	5000		V-5596	BPD-5	D6-502	811-005	29C1	3rd V. IF Screen Bypass
C42	5000		V-5596	BPD-5	D6-502	811-005	29C1	3rd V. IF Fil. Bypass
C43	5000		V-5596	BPD-5	D6-502	811-005	29C1	RF Bypass
C44	270	500	RCM20B271K	1468-00025	D6-271	GP2K-270	1FM-325	IF Coupling
C45	5000		V-5596	BPD-5	D6-502	811-005	29C1	4th V. IF Cath. Bypass
C46	5000		V-5596	BPD-5	D6-502	811-005	29C1	4th V. IF Screen Bypass
C47	5000		V-5596	BPD-5	D6-502	811-005	29C1	RF Bypass
C48	5000		V-5596	BPD-5	D6-502	811-005	29C1	4th V. IF Fil. Bypass
C49	100	500	RCM20B101K	1468-0001	D6-101	GP1K-100	1FM-31	IF Coupling-See Note 1
C50	100	500	RCM20B101K	1468-0001	D6-101	GP1K-100	1FM-31	IF Coupling #
C51	4.7		V-5658-6	GP5K	D2-4.7	NPOK-4.7	MS-55	V. Diode Filter
C52	5000		V-5596	BPD-5	D6-502	811-005	29C1	DAGC Decoupling #
C53	5000		V-5596	BPD-5	D6-502	811-005	29C1	AGC Keying Fil. Bypass
C54	4.7		V-5658-6	CN4.7DNPO	D2-4.7	NPOK-4.7	MS-55	Fixed Trimmer
C55	.033	400	V-6023-4333M	P488-033			TM-13	V. Output Cath. Bypass #

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA WESTINGHOUSE PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56	.1	400	V-6023-4104M	P488-1			TM-1	Video Coupling
C57	.1	400	V-6023-4104M	P488-1			TM-1	Pic. Tube Grid Filter
C58	4.7		V-5658-6	CN4.7DNPO	D2-4.7	NPOK-4.7	TM-15	S. IF Coupling
C59	5000		V-5596	BPD-5	D6-502	811-005	29C1	1st S. IF Cath. Bypass
C60	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	RF Bypass
C61	47	500	RCM20B470K	1468-00005	D6-470	GP1K-47	1FM-45	S. IF Coupling
C62	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	2nd S. IF Decoupling
C63	10	500	RCM20B100K	1469-00001	D2-10	NPOK-10	MS-41	Fixed Trimmer
C64	680	500	RCM20B681M	1468-00075	D6-681	GP2K-680	1FM-37	Diode Load Cap.
C65	.002	600	V-6023-6202M	P688-002	D6-202	GP2M-002	TM-22	De-emphasis
C66	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Audio Coupling
C67	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Tone Compensation
C68	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Audio Coupling
C69	100	500	RCM20B101K	1468-0001	D6-101	GP1K-100	1FM-31	AF Amp. Grid Bypass
C70	270	500	RCM20B271K	1468-00025	D6-271	GP2K-270	1FM-325	AF Amp. Plate Bypass
C71	.1	400	V-6023-4104M	P488-1			TM-1	AF Amp. Plate Decoupling
C72	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Tone Compensation
C73	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Audio Coupling
C74	.002	600	V-6023-6202M	P688-002	D6-202	GP2M-002	TM-22	Output Plate Bypass
C75	.25	400	V-6023-4254M	P488-25			TC-2	Sync. Coupling ¶
C76	390	500	RCM20B391K	1468-0004	D6-391	GP2K-390	1FM-34	Sync. Coupling-See Note 1
C77	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Sync. Coupling †
C78	47	500	RCM20B470K	1468-00005	D6-470	GP1K-47	1FM-45	1st Sync. Amp. Plate Bypass #
C79	.047	400	V-6023-4503M	P488-047			TM-15	Sync. Coupling
C80	100	500	RCM20B101K	1468-0001	D6-101	GP1K-100	1FM-31	2nd Sync. Amp. Plate Bypass †
C81	390	500	RCM20B391K	1468-0004	D6-391	GP2K-390	1FM-34	Sync. Coupling-See Note 2
C82	.1	400	V-6023-4104M	P488-1			TM-1	Vert. Sync. Coupling #
C83A	2000		Note 6	GP2000M	D6-202	GP2M-002	TM-22	Integrator Net.
B	5000			GP5000M	D6-502	811-005	TM-25	Integrator Net.
C	5000			GP5000M	D6-502	811-005	TM-25	Integrator Net.
C84	.047	400	V-6023-4503M	P488-047			TM-15	Vert. MV Cath. Bypass
C85	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Vert. MV Feedback-See Note 3
C86	.1	400	V-6023-4104M	P488-1			TM-1	Vert. Hold Control Bypass †
C87	.1	400	V-6023-4104M	P488-1			TM-1	Vert. Discharge
C88	.1	400	V-6023-4104M	P488-1			TM-1	Vert. Sweep Coupling
C89	.001	600	V-6023-6102M	P688-001	D6-102	GP2L-001	TM-21	Hor. Sync. Coupling
C90	.001	600	V-6023-6102M	P688-001	D6-102	GP2L-001	TM-21	Hor. Sync. Coupling
C91	330	500	RCM20C331J	1469-00035	DN-330			Hor. Feedback
C92	.0033	600	V-6023-6332M	P688-0033	D6-332	GP2M-0033	TM-23	AFC Filter-See Note 4
C93	.0047	400	V-6023-4472M	P688-0047	D6-472	GP2M-0047	TM-25	AFC Filter
C94	.047	400	V-6023-4503M	P488-047			TM-15	AFC Filter
C95	3900	500	RCM20C392K	1464-004			MS-24	Fixed Trimmer
C96	330	500	RCM20C331J	1469-00035	DN-330			Hor. MV Feedback
C97	.1	400	V-6023-4104M	P488-1			TM-1	Hor. MV Plate Dec. †
C98	680	500	RCM20B681M	GP680K	D6-681	GP2K-680	1FM-37	Hor. Discharge
C99	.01	400	V-6023-4103M	P488-01	D6-103	821-01	TM-11	Hor. Sweep Coupling
C100	270	500	RCM20B271K	1468-00025	D6-271	GP2K-270	1FM-325	Hor. Output Grid Bypass -Note 5
C101	.1	400	V-6023-4104M	P488-1			TM-1	Hor. Output Cath. Bypass
C102	.1	400	V-6023-4104M	P488-1			TM-1	Hor. Output Screen Bypass
C103	.1	400	V-6023-4104M	P488-1			TM-1	Hor. Output Plate Decoup.
C104	.1	400	V-6023-4140M	P488-1			TM-1	Hor. Sweep Coupling
C105	.25	400	V-6023-4254M	P488-25			TC-2	Damper Filter
C106	.1	400	V-6023-4104M	P488-1			TM-1	RF Bypass †
C107	.05	400	V-6023-4503M	P488-05			TM-15	HV Osc. Plate Dec.
C108	.05	400	V-6023-4503M	P488-05			TM-15	HV Osc. Screen Bypass
C109	270	500	RCM20B271K	1468-00025	D6-271	GP2K-270	1FM-325	HV Osc. Grid Cap.
C110	500	10000	V-5895		TV2-501			HV Filter
C111	500	10000	V-5895		TV2-501			HV Filter
C112	.01	600	V-5040-15	P688-01	D6-103	821-01	TM-11	Line Filter
C113	.01	600	V-5040-15	P688-01	D6-103	821-01	TM-11	Line Filter
C114	5000		V-5596	BPD-5	D6-502	811-005	29C1	Filament Bypass *
C115	5000		V-5596	BPD-5	D6-502	811-005	29C1	Filament Bypass *
C116	5000		V-5596	BPD-5	D6-502	811-005	29C1	Filament Bypass *

* Not used in all models.
† Used only in chassis V-2150-61A and V-2150-61B.
‡ Some models use 150MMF in this application.
§ Used only in chassis V-2150-61 and V-2150-61A.
# Used only in chassis V-2150-61.
¢ Used only in chassis V-2150-61B.
¶ Used only in chassis V-2150-61 and V-2150-61B.
Note 1. Some models use 270MMF in this application.
Note 2. Some models use .05MFD in this application. MFGR'S Part No. V-6023-4503M.
Note 3. Chassis V-2150-61 use .022MFD in this application.
Note 4. Some models use .0022MFD in this application.
Note 5. Chassis V-2150-61 use 47MMF in this application.
Note 6. Items C83A, C83B, C83C, R88A, R88B, R88C are combined into one unit obtainable under MFGR'S Part No. V-9213.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WESTING. PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2 Meg.	½		B13-139X *			Volume control-front-tapped at 500KΩ
B	1 Meg.	½		B17-137 *			Tone control-rear
C	Shaft End		V-9055	E-202 *	V-9055	SBBT-595-S	Attach per instructions in "Concentrikit".
D	Switch			76-1 *			Attach per instructions in "Concentrikit".
R2A	500KΩ	½		B11-133 *			Vert. hold control-front
B	100KΩ	½	V-6464-1	B11-128 *	B-6464-1	SBB-514	Horiz. hold control-rear
C	Shaft End			E-202 *			Attach per instructions in "Concentrikit".
R3A	50KΩ	½		B11-123 *			Brightness control-front-see note 1 and 3
B	5000Ω	½	V-6466	B11-114 *	V-6466	SBB-594	Contrast control-rear-see note 1 and 3
C	Shaft End			E-202 *			Attach per instructions in "Concentrikit".
R3A	50KΩ	½	V-9235-2				Brightness control - See note 2 and 3
B	1500Ω	½					Contrast control - See note 2 and 3
R4A	5000Ω	2	V-6463	Q11-114	M-19-S	AN-10	Vert. linearity control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R4A per instructions
R5A	1 Meg.	½	V-6462	Q11-137	M-61-S	AN-69	Height control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R5A per instructions
R6	5000Ω	3	V-6500-1		58-5000	V-135	Width control-Wire Wound
R7	400Ω	3	V-5908		58-400	V-126	Focus control-Wire Wound

* Additional parts to be used with "Concentrikit".
Note 1. Not used in all models.
Note 2. Used in chassis V-2150-61A, 61B only.
Note 3. Some models may use control part No. V-9235.

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WESTINGHOUSE PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED
R8	1000Ω 20%	½		BTS-1000	RF Grid
R9	1000Ω	½		BTS-1000	RF Screen
R10	10KΩ	1			RF Plate
R11	18KΩ	½		BTS-18K	RF Coil Shunt
R12	4700Ω	½		BTS-4700	Mixer Coil Shunt
R13	1 Meg. 20%	½		BTS-1 Meg.	Mixer Grid
R14	82KΩ	½		BTS-82K	Mixer Grid
R15	82KΩ	½		BTS-82K	Mixer Screen
R16	22KΩ 20%	½			Osc. Grid
R17	470Ω 20%	½			Osc. Cathode
R18	6800Ω 20%	1			Osc. Plate
R19	1000Ω 20%	½		BTS-1000	Mixer Plate Decoupling.
R20	2000Ω	5	V-6984-1	AB-2000	Decoupling-Wire Wound
R21	12KΩ	½	RC20AE123K	BTS-12K	1st Video IF Grid
R22	100Ω	½	RC20AE101K		1st Video IF Cathode
R23	1000Ω 20%	½	RC20AE102M	BTS-1000	1st Video IF Screen
R24	1000Ω 20%	½	RC20AE102M	BTS-1000	1st Video IF Plate Decoupling
R25	10KΩ 20%	½	RC20AE103M	BTS-10K	AGC Network
R26	10KΩ 20%	½	RC20AE103M	BTS-10K	AGC Network
R27	10KΩ	½	RC20AE103K	BTS-10K	2nd Video IF Grid
R28	100Ω	½	RC20AE101K		2nd Video IF Cathode
R29	1000Ω 20%	½	RC20AE102M	BTS-1000	2nd Video IF Screen
R30	1000Ω 20%	½	RC20AE102M	BTS-1000	2nd Video IF Plate Decoupling-See Note 4
R31	2.2 Meg.	½	RC20AE225K	BTS-2.2 Meg.	AGC Network
R32	220KΩ	1	RC30AE224K	BTA-220K	AGC Keying Plate Load-See Note 5
R33	6800Ω	½	RC20AE682K		3rd Video IF Coil Shunt
R34	68Ω	½	RC20AE680K		3rd Video IF Cathode
R35	100KΩ	1	RC30AE104K	BTA-100K	3rd Video IF Screen
R36	4700Ω	½	RC20AE472K	BTS-4700	4th Video IF Coil Shunt
R37	68Ω	½	RC20AE680K		4th Video IF Cathode
R38	47KΩ	1	RC30AE473K	BTA-47K	4th Video IF Screen
R39	4700Ω	½	RC20AE472K	BTS-4700	Video Det. Load-See Note 25
R40	10KΩ	½	RC20AE103K	BTS-10K	Isolation-See Notes 6 and 24
R41	4700Ω	½	RC20AE472K	BTS-4700	AGC Keying Grid
R42	1 Meg.	½	RC20AE105K	BTS-1 Meg.	AGC Det. Load-See Note 7
R43	1000Ω	½	RC20AE102K	BTS-1000	Delayed AGC Network-See Note 7
R44	100KΩ	½	RC20AE104K	BTS-100K	Delayed AGC Network-See Note 7
R45	10KΩ	2	RC41AE103K	BT-2-10K	AGC Keying Cathode-See Notes 5 and 8
R46	2200Ω	1	RC30AE222K	BTA-2200	Voltage Divider-See Notes 5 and 9
R47	2200Ω	½	RC20AE222K	BTS-2200	Contrast Control Shunt-See Note 10
R48	68KΩ	1	RC30AE683K	BTA-68K	Video Output Screen-See Note 11
R49	22KΩ	½	RC20AE223K	BTS-22K	Peaking Coil Shunt
R50	3600Ω 5%	1	RC30AE362J		Video Output Plate
R51	10KΩ	2	RC41AE103K	BT-2-10K	Video Output Plate Decoupling
R52	33Ω	½	RC30AE330M		Video Output Cathode-See Note 7
R53	270KΩ	½	RC30AE274K	BTS-270K	Voltage Divider-See Note 7
R54	5000Ω	5	V-5925	AB-5000	Bleeder-Wire Wound-See Note 7
R55	47KΩ	½	RC20AE473K	BTS-47K	Voltage Divider-See Note 11
R56	68KΩ	½	RC20AE683K	BTS-68K	Picture Tube Cathode
R57	47KΩ	½	RC20AE473K	BTS-47K	Voltage Divider
R58	100Ω	½	RC20AE101K		1st Sound IF Cathode
R59	47KΩ	½	RC20AE473K		2nd Sound IF Grid
R60	68KΩ	1	RC30AE683K		2nd Sound IF Decoupling
R61	33KΩ	½	RC20AE333K	BTS-33K	De-emphasis
R62	10KΩ 5%	½	RC20AE103J	BTS-10K-5%	Ratio Det. Diode Load
R63	10KΩ 5%	½	RC20AE103J	BTS-10K-5%	Ratio Det. Diode Load
R64	22KΩ	½	RC20AE223K	BTS-22K	Tone Compensation
R65	10 Meg. 20%	½	RC20AE106M	BTS-10 Meg.	AF Amp. Grid
R66	270KΩ	½	RC20AE274K	BTS-270K	AF Amp. Plate
R67	47KΩ	½	RC20AE473K	BTS-47K	AF Amp. Plate Decoupling
R68	470KΩ	½	RC20AE474K	BTS-470K	Output Grid
R69	330Ω	1	RC30AE331K	BW-1-330	Output Cathode-See Note 12
R70	470Ω	2	RC41AE471K	BW-2-470	Output Decoupling-See Note 13
R71	2.2 Meg.	½	RC20AE225K	BTS-2.2 Meg.	Noise Clipper Load-See Note 14
R72	1 Meg.	½	RC20AE105K	BTS-1 Meg.	Voltage Divider-See Note 5
R73	22KΩ	½	RC20AE223K	BTS-22K	1st Sync. Amp. Plate-See Note 15
R74	470KΩ	½	RC20AE474K	BTS-470K	Charge Limiting-See Note 6
R75	1 Meg.	½	RC20AE105K	BTS-1 Meg.	Sync. Sep. Grid
R76	150KΩ	½	RC20AE154K	BTS-150K	Sync. Sep. Plate
R77	22KΩ	½	RC20AE223K	BTS-22K	Voltage Divider-See Note 16
R78	1 Meg.	½	RC20AE105K	BTS-1 Meg.	2nd Sync. Amp. Grid
R79	1000Ω	½	RC20AE102K	BTS-1000	2nd Sync. Amp. Cathode
R80	330Ω	½	RC20AE331K		2nd Sync. Amp. Cathode-See Note 5
R81	15KΩ	2	RC41AE153K	BT-2-15K	2nd Sync. Amp. Plate
R82	2.2 Meg.	½	RC20AE225K	BTS-2.2 Meg.	Sync. Phase Inv. Grid
R83	27000Ω	½	RC20AE272K	BTS-27K	Sync. Phase Inv. Cathode
R84	27000Ω	½	RC20AE272K	BTS-27K	Sync. Phase Inv. Plate
R85	3900Ω	½	RC20AE392K	BTS-3900	Sync. Phase Inv. Plate-See Note 7
R86	15KΩ	½	RC20AE153K	BTS-15K	Isolation-See Note 7
R87	1000Ω	½	RC20AE102K	BTS-1000	Voltage Divider-See Note 7
R88A	22KΩ	½	Note 27	BTS-22K	Integrator Network
B	8200Ω	½	Note 27	BTS-8200	Integrator Network
C	8200Ω	½	Note 27	BTS-8200	Integrator Network
R89	100KΩ	½	RC20AE104K	BTS-100K	Vert. MV Plate
R90	1000Ω	½	RC20AE102K	BTS-1000	Vert. MV Cathode
R91	470KΩ	½	RC20AE474K	BTS-470K	Vert. MV Grid-See Note 17
R92	390KΩ 5%	½	RC20AE394J	BTS-390K-5%	Vert. MV Plate
R93	47KΩ	½	RC20AE473K	BTS-47K	Vert. MV Plate Decoupling
R94	3900Ω	½	RC20AE392K	BTS-3900	Vert. Peaking-See Note 18
R95	2.2 Meg.	½	RC20AE225K	BTS-2.2 Meg.	Vert. Output Grid
R96	470Ω	½	RC20AE471	BTS-470	Vert. Output Cathode
R97	470Ω	½	RC20AE471	BTS-470	Vert. Output Decoupling-See Notes 19 and 26
R98	220KΩ	1	RC30AE224K	BTA-220K	Feedback Network
R99	220KΩ	1	RC30AE224K	BTA-220K	Feedback Network
R100	68KΩ	½	RC20AE683K	BTS-68K	Horiz. AFC Filter Network
R101	100KΩ 5%	½	RC20AE104J	BTS-100K-5%	Horiz. AFC Diode Load
R102	100KΩ 5%	½	RC20AE104J	BTS-100K-5%	Horiz. AFC Diode Load
R103	4.7 Meg. 20%	½	RC20AE475M	BTS-4.7 Meg.	Horiz. AFC Diode Load
R104	470KΩ	½	RC20AE474K	BTS-470K	Horiz. AFC Filter Network
R105	100Ω	½	RC20AE101K		Horiz. MV Cathode-See Note 5
R106	1800Ω	½	RC20AE182K	BTS-1800	Horiz. MV Cathode
R107	5600Ω	½	RC20AE562K	BTS-5600	Horiz. MV Plate
R108	33KΩ	½	RC20AE333K	BTS-33K	Horiz. MV Decoupling-See Notes 20 and 5
R109	220KΩ 5%	½	RC20AE224J	BTS-220K-5%	Horiz. MV Grid
R110	220KΩ 5%	½	RC20AE224J	BTS-220K-5%	Horiz. MV Plate
R111	10KΩ	½	RC20AE103K	BTS-10K	Horiz. MV Plate Decoupling

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WESTINGHOUSE PART No.	IRC PART No.	IDENTIFICATION CODES
R112	27KΩ	½	RC20AE273K	BTS-27K	Horiz. Peaking
R113	120Ω	½	RC20AE121K		Parasitic Supp.
R114	33Ω 20%	½	RC20AE330M		Parasitic Supp.
R115	120Ω	½	RC20AE121K		Parasitic Supp.
R116	33Ω 20%	½	RC20AE330M		Parasitic Supp.
R117	120Ω	½	RC20AE121K		Parasitic Supp.
R118	33Ω 20%	½	RC20AE330M		Parasitic Supp.
R119	100KΩ	½	RC20AE104K	BTS-100K	Horiz. Output Grid-See Note 21
R120	150Ω	3	V-6067-4		Horiz. Output Cathode-Wire Wound
R121	10KΩ	10	V-6984-5	AB-10K	Horiz. Output Screen-Wire Wound
R122	2000Ω	5	V-6984-1	AB-2000	Damper Filter-Wire Wound
R123	68KΩ	½	RC20AE683K	BTS-68K	HV Osc. Grid
R124	33KΩ	2	RC40AE333K	BT-2-33K	HV Osc. Screen
R125	68Ω	½	RC20AE680K		HV Osc. Plate Decoupling
R126	100KΩ	½	RC20AE104K		HV Filter
R127	110Ω	3	V-4758		Focus Coil Shunt-Wire Wound
R128	270Ω	1	RC30AE271K	BW-1-270	Decoupling-See Note 22
R129	560Ω	5	V-6984-6		Focus Coil Shunt-Wire Wound-See Note 19
R130	270KΩ	½	RC20AE274K	BTS-270K	Line Filter
R131	1 Meg.	½	RC20AE105K	BTS-1 Meg.	Voltage Divider-See Note 23
R132	2700Ω	½	RC20AE272K	BTS-2700	Video Det. Load-See Note 23

Note 4. Used in chassis V-2150-61B only.
Note 5. Not used in chassis V-2150-61.
Note 6. Chassis V-2150-61 uses 4700Ω resistor in this application.
Note 7. Used in chassis V-2150-61 only.
Note 8. Early production models use 5KΩ, 5 Watt resistor in this application.
Note 9. Early production models use 1000Ω, 1 Watt resistor in this application.
Note 10. Not used when control with Part #V-9235 is used.
Note 11. Chassis V-2150-61 uses 100KΩ resistor in this application.
Note 12. Chassis V-2150-61 and early production models use 190Ω, 2 Watt resistor in this application.
Note 13. Chassis V-2150-61 and early production models use 240Ω, 2 Watt resistor in this application.
Note 14. Used in chassis V-2150-61, 61B only.
Note 15. Chassis V-2150-61 uses 10KΩ resistor in this application.
Note 16. Chassis V-2150-61 use 47KΩ resistor in this application.
Note 17. Chassis V-2150-61 uses 220KΩ resistor in this application.
Note 18. Chassis V-2150-61 uses 3300Ω resistor in this application.
Note 19. Not used in all models.
Note 20. Some models use two resistors in series to obtain required resistance and wattage.
Note 21. Chassis V-2150-61 use 470KΩ resistor in this application.
Note 22. Chassis V-2150-61 use 560Ω, 5 Watt resistor in this application.
Note 23. Used in chassis V-2150-41 only.
Note 24. Not used in chassis V-2150-41.
Note 25. Chassis V-2150-41 uses 2200Ω resistor in this application.
Note 26. Chassis V-2150-41 uses 1000Ω resistor in this application.
Note 27. Items C83A, C83B, C83C and R88A, R88B, R88C are combined into one unit obtainable under MFGR'S Part No. V-9213.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA WESTINGHOUSE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	66VCT	5VAC	12.6VCT	V-6988	P-8156 ① ②	P-3061 ①	TP-365
	② 2.3A	.300ADC	② 6A	④ 5A				

① Add series resistor to reduce plate voltage.
② File out mounting holes if necessary.

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA WESTINGHOUSE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T2	117VAC	6.3VAC			V-6481-2	P-6134 ③	P-2945	F-633 ③
	② .1A	② 1.2A						

③ Drill one new mounting hole.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA WESTINGHOUSE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T3A	440Ω		V-9230-2 ⑤				Hor. Output Choke
B	510Ω		V-6979-1 ⑥				Hor. Output Choke
T4A	700Ω	8Ω	V-6981-1 ⑤	A-8112 ③	A-3036 ③	TSO-5	Vert. Output Trans.
B	650Ω	8Ω	V-6508 ⑥	A-8115 ④	A-3035 ④	TSO-1	Vert. Output Trans.
T5A	36Ω		V-6486-2	DY-1	MD-3		Hor. Deflection Yoke
B	65Ω						Vert. Deflection Yoke
T6	240Ω						Focus Coil
T7	2Ω	700Ω	V-9278				H.V. Transformer
		SEC. 2					
		0Ω					

③ Drill one new mounting hole.
④ Drill new mounting holes.
⑤ Used in chassis V-2150-61A and V-2150-61B.
⑥ Used in chassis V-2150-61.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA WESTINGHOUSE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T8	1.8KΩ	4Ω	265Ω	.6Ω	V-6987	A-3876 ③	A-2928 ③	RO-304 ③	③ Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	WESTINGHOUSE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	4Ω	V-6449	ST-108 MOD. P6-X	6A15	
	CONE DIA.	V. C. DIA.				
SP2	5 7/8"	9/16"				

FILTER CHOKE

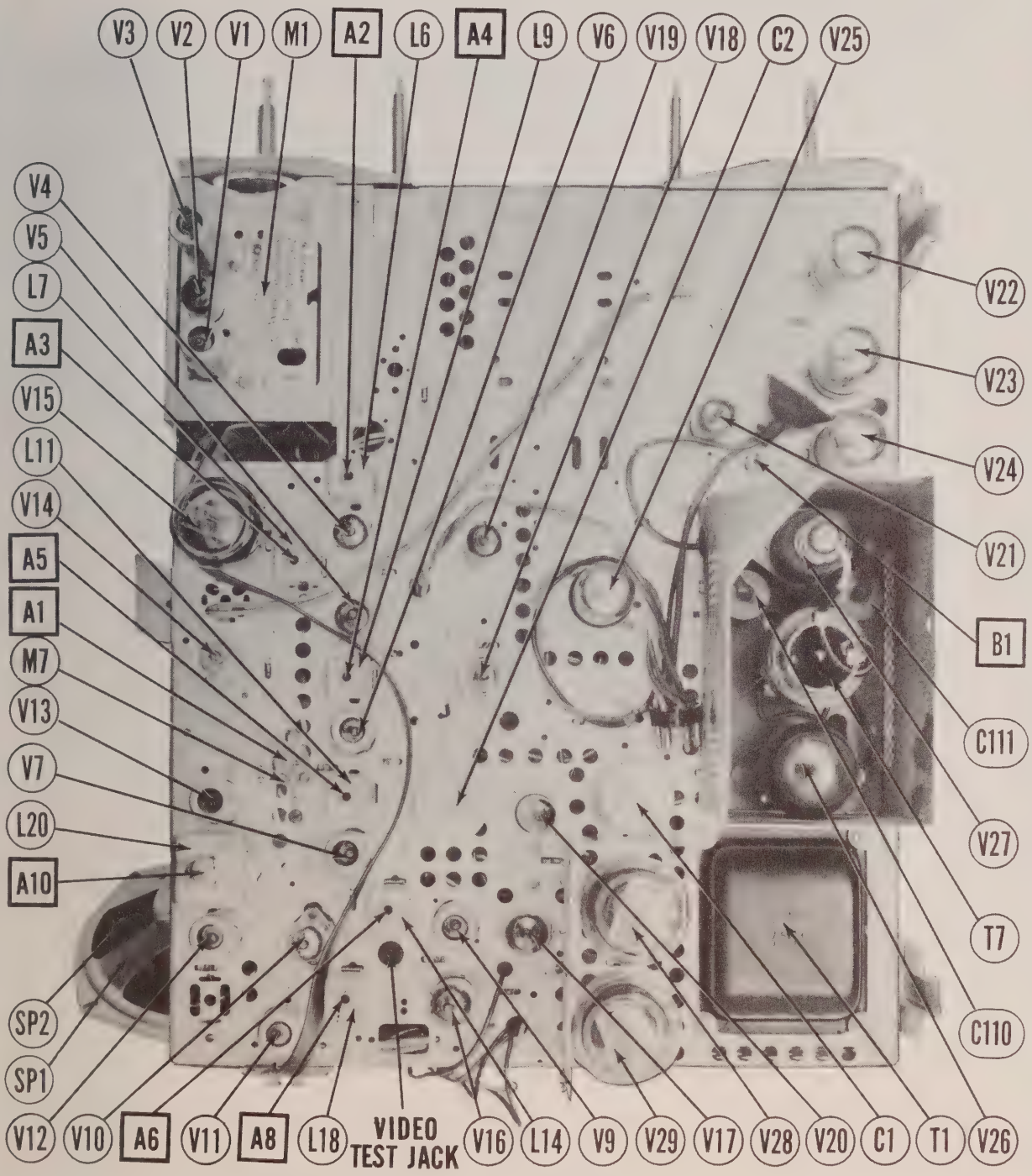
ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↶)	WESTING. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.300A	41.5Ω	1.4 Henry	V-6471	C-2326 ③	C-2996 ③	TR-3300③	③ Drill one new mounting hole.

COILS (RF-IF)

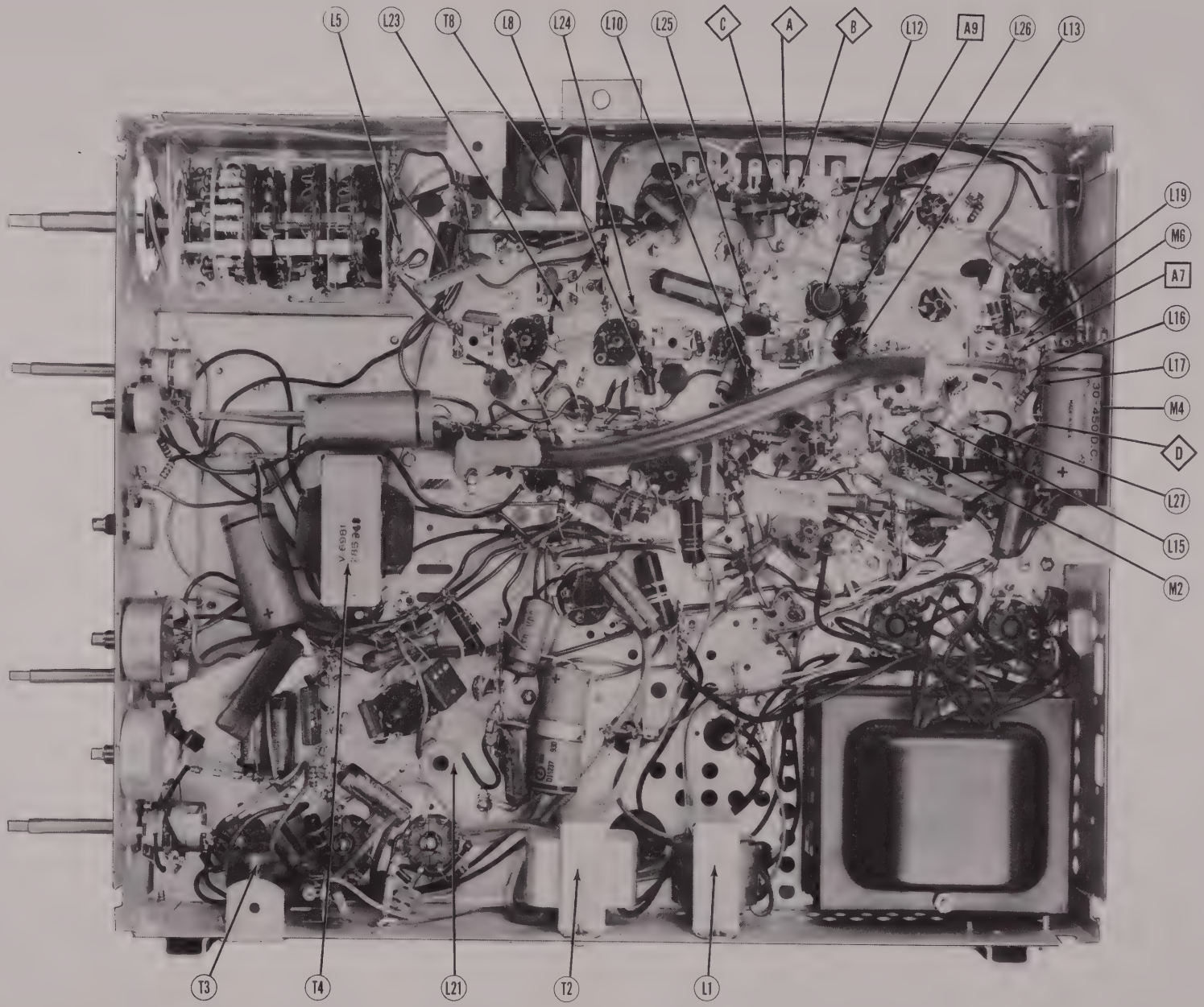
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	WESTINGHOUSE PART No.	MEISSNER PART No.	
L2	Ant. Trans.	0Ω	0Ω			Part of tuner. Part #V-8209.
L3	Fil. Choke	0Ω				Part of tuner. Part #V-8209.
L4	Fil. Choke	0Ω				Part of tuner. Part #V-8209.
L5	Fil. Choke	0Ω		V-9099-1		
L6	1st Video IF	.1Ω		V-6459		
L7	2nd Video IF	.1Ω		V-6459		
L8	RF Choke	2.8Ω		V-5902-7		Chassis V-2150-61A
L9	3rd Video IF	.1Ω		V-6459		
L10	RF Choke	2.8Ω		V-5902-7		
L11	4th Video IF	.1Ω		V-6459		
L12	21.6MC Trap	.1Ω	.1Ω	V-5899		Includes M7
L13	RF Choke	2.8Ω		V-5902-7		
L14	5th Video IF	.1Ω		V-6459		
L15	Peaking	4.6Ω		V-5902-4		
L16	Peaking	5.6Ω		V-5902-1		
L17	Peaking	8Ω		V-5902-5		
L18	Sound IF	1.9Ω		V-6517		
L19	RF Choke	4.8Ω		V-5902-4		
L20	Ratio Det. Trans.	6.7Ω	.6Ω	V-6483		
L21	Ringing	100Ω		V-6764		Horiz. course tuning
L22	RF Choke	17Ω		V-9279-1		
L23	Fil. Choke	0Ω		V-4886-2		
L24	Fil. Choke	0Ω		V-4886-2		
L25	Fil. Choke	0Ω		V-4886-2		
L26	Fil. Choke	0Ω		V-4886-2		
L27	Fil. Choke	0Ω		V-4886-2		
L28	Fil. Choke	0Ω		V-4886-2		

MISCELLANEOUS

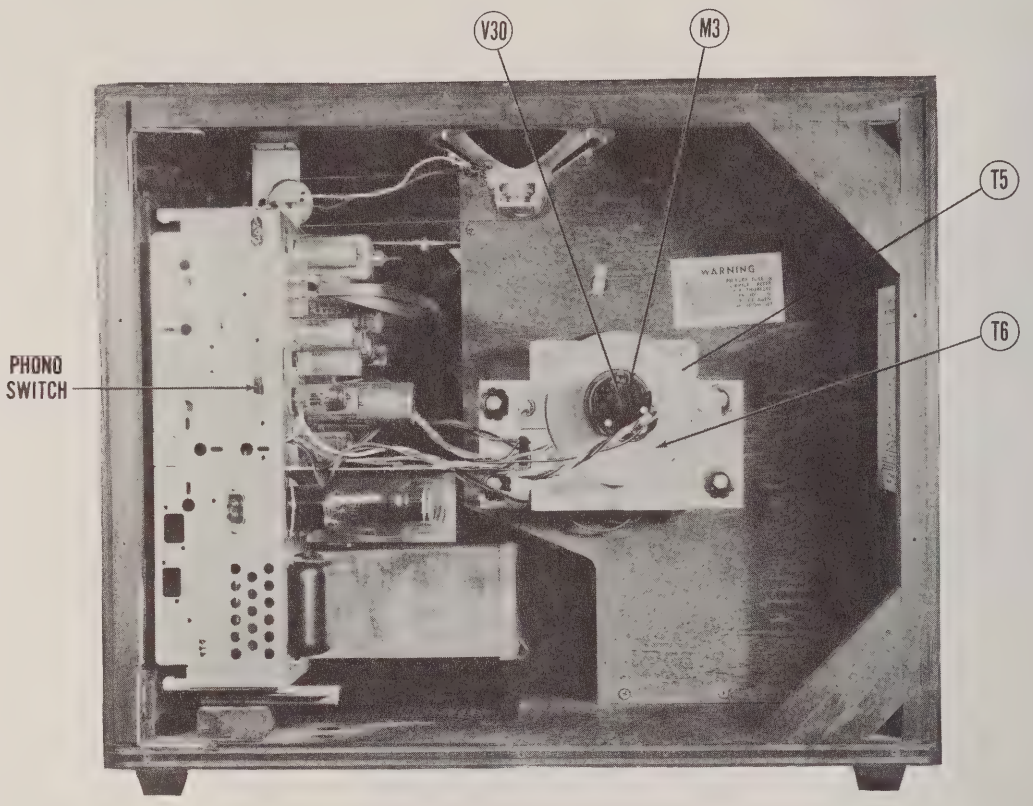
ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
M1	RF Tuner	V-8209	Complete less mounting
M2	Crystal	V-6962-1	Video Det. 1N34 chassis V-2150-61A, V-2150-61B
M3	Ion Trap	V-6573-2	
M4	Switch	V-5406	TV-Phono
M5	Ant. Assembly	V-9366-1	
M6	Trimmer	V-9398	4.5MC Trap
M7	Trimmer	V-3713-3	21.6MC Trap
M8	Trimmer	V-6454	HV Osc.
M9	Crystal	V-6962-1	1N34 AGC Rect. Chassis V-2150-61
M10	Crystal	V-6962-1	1N34 Sync. Clipper Chassis V-2150-61
	Knob	V-6146-1	Contrast, Vol., Horiz. Hold
	Knob	V-6146-5	TV Antenna
	Knob	V-6284-2	Channel Selector
	Knob	V-9104-1	Brightness, Vert. Hold, Tone
	Knob	V-9104-4	Fine Tuning



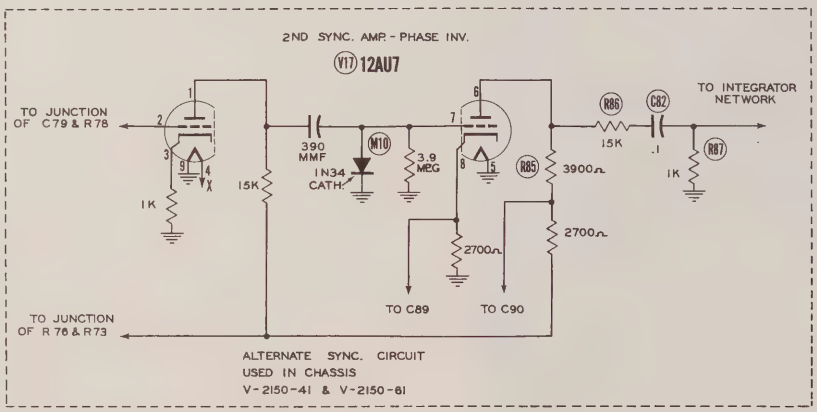
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



CABINET-REAR VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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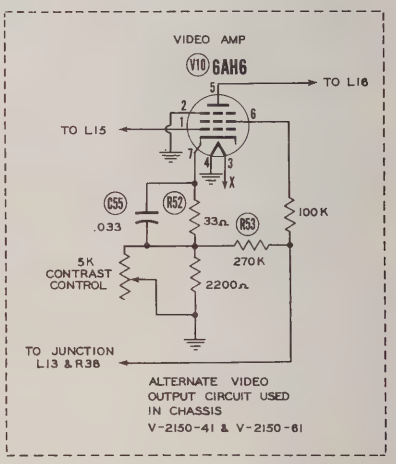
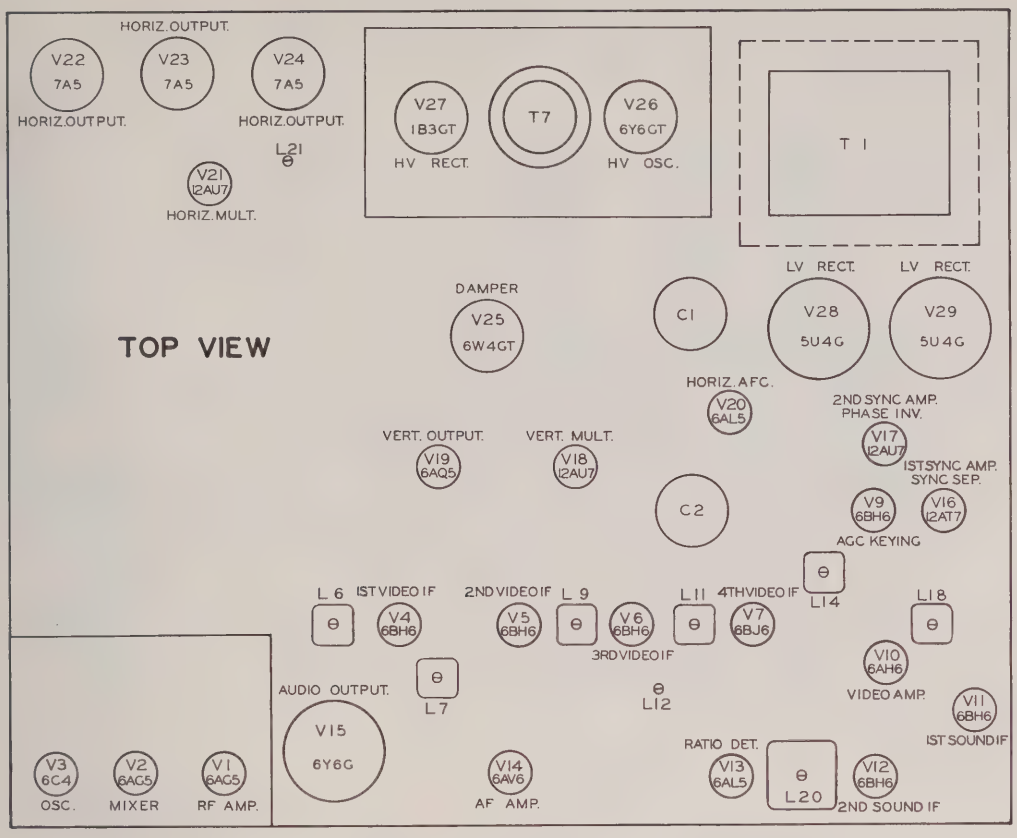
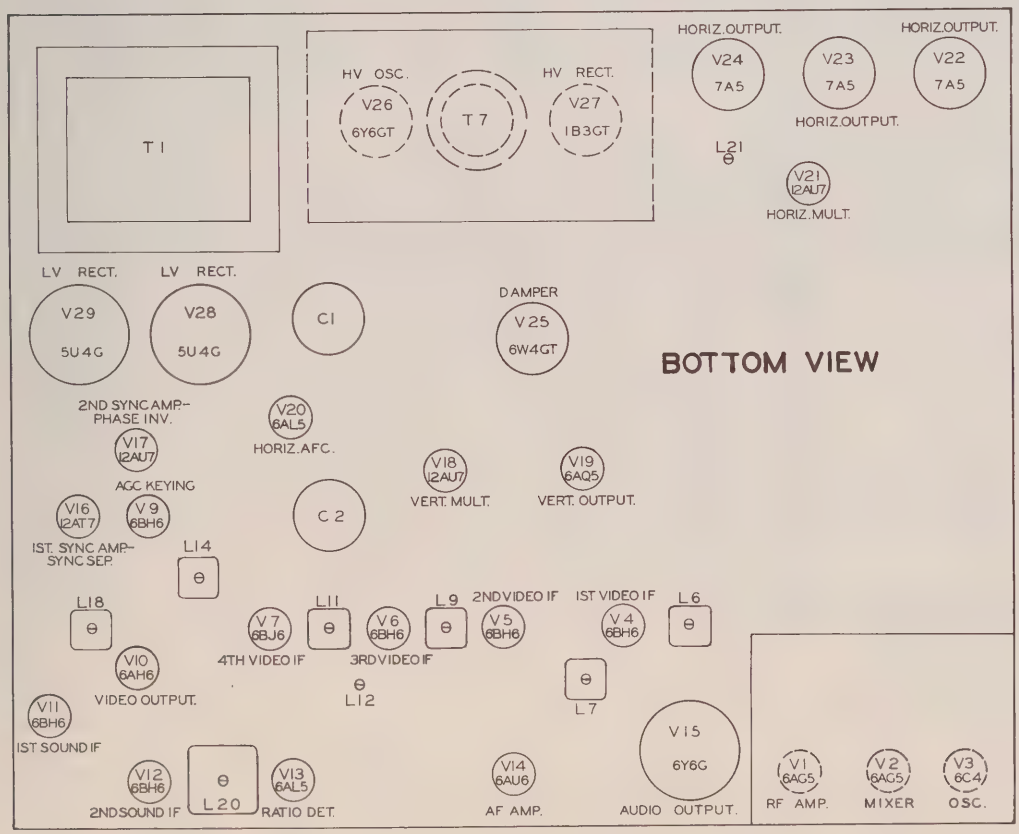






TUBE PLACEMENT CHART

WESTINGHOUSE MODELS H-600T16 (Ch. V-2150-61, A, B), H-601K12, H-602K12 (Ch. V-2150-41)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To eliminate the high voltage shock hazard, remove the high voltage oscillator tube (V26) from its socket.

VIDEO IF ALIGNMENT

Remove the local oscillator tube (V3) to prevent erroneous indications.
During video IF alignment attenuate signal generator to maintain 2 volt reading on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.6MC (Unmod.)	Any	DC Probe to "Video test jack". Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	Direct	"	22.6MC	"	"	A2	Adjust for maximum deflection.
3.	Direct	"	25.9MC	"	"	A3	"
4.	Direct	"	25.6MC	"	"	A4	"
5.	Direct	"	23.8MC	"	"	A5	"
6.	Direct	"	23.0MC	"	"	A6	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
Connect a 200KΩ isolating resistor in series with the oscilloscope high side, and a 500MMF capacitor across the end of the lead.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	24MC (10MC SWP)	21.6MC 22.5MC 23.5MC 25.3MC 26.1MC	Any	Vert. Amp. to "Video test jack". Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A2 thru A6 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to "Video test jack". Low side to chassis.	Not used	4.5MC (400 ∿ Mod.)	Any	Vert. Amp. to Point (D). Low side to chassis.	A7	Adjust for minimum 400 ∿ indication on scope.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001MFD	High side to "video test jack". Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A8, A9	Adjust for maximum deflection.
10.	.001MFD	"	"	"	DC Probe to point (B). Common to point (C).	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawoooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.001MFD	High side to "Video test jack". Low side to chassis..	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (A). Low side to chassis.	A8, A9	Disconnect stabilizer capacitor C8. Adjust for maximum amplitude and symmetry as per figure 2.
10.	.001MFD	"	"	"	"	Vert. Amp. to Point (B). Low side to chassis.	A10	Reconnect capacitor C8. Adjust A10 so 4.5MC occurs at center of crossover lines as per figure 3. Slightly retouch A9 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Replace the local oscillator tube (V2) in its socket.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to "Video test jack". Low side to chassis.	A11	Adjust to place the sound marker as shown in figure 4.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A12	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A13	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A14	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A15	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A16	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A17	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A18	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A19	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A20	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A21	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A22	

THE RF AND MIXER LINES OF THIS TUNER ARE PRE-SET AT THE FACTORY AND ARE VERY STABLE AND NORMALLY SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

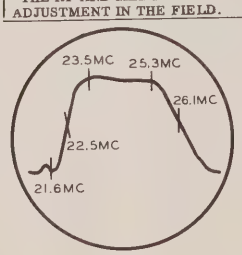


FIG.1

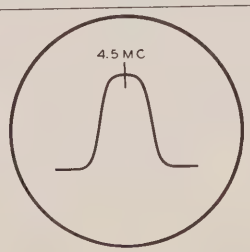


FIG. 2

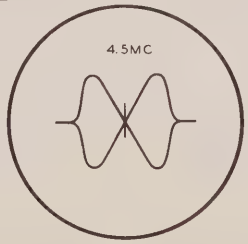


FIG. 3

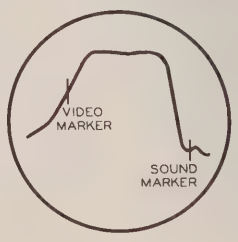
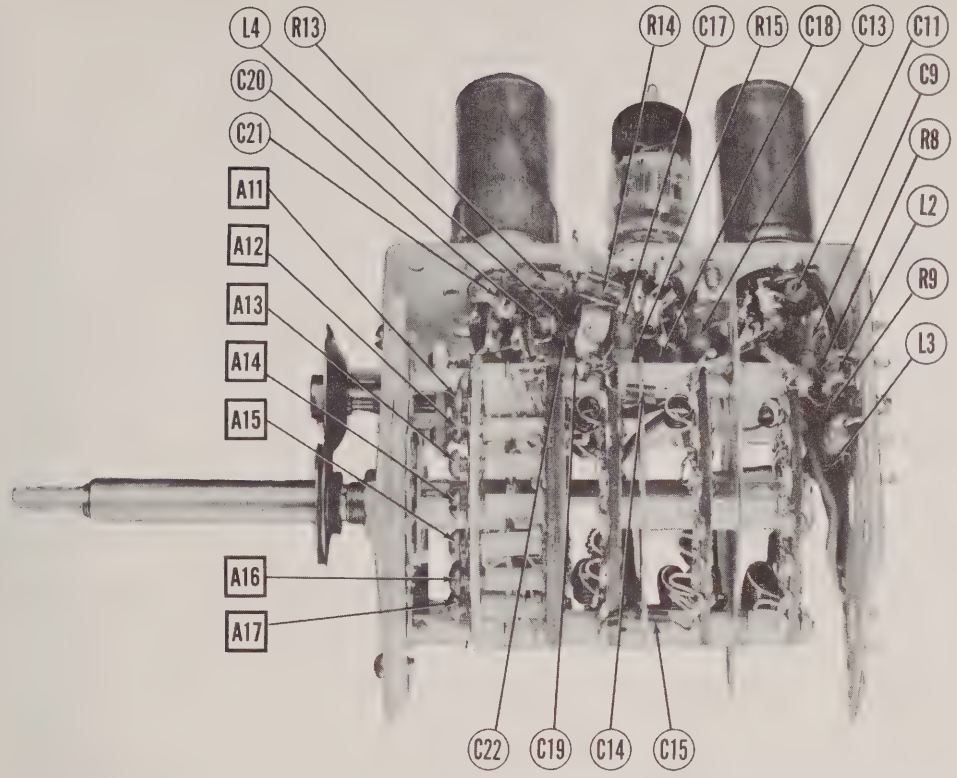
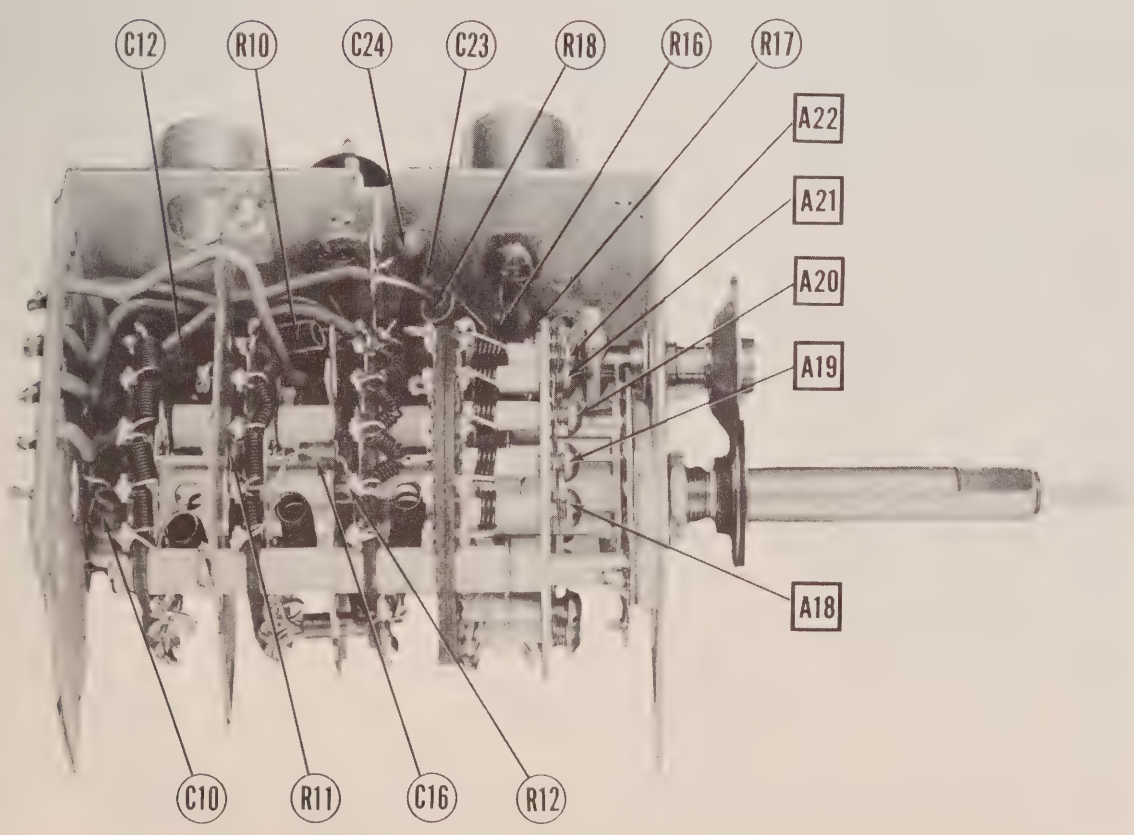


FIG.4



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.5VDC	0V.	6.3VAC	0V.	170VDC	125VDC	0V.		
V 2	6AG5	-2.3VDC	0V.	6.3VAC	0V.	330VDC	165VDC	0V.		
V 3	6C4	195VDC	0V.	0V.	6.3VAC	195VDC	§-2.4VDC	6.3VDC		
V 4	6BH6	-1.7VDC	.6VDC	6.3VAC	0V.	340VDC	130VDC	0V.		
V 5	6BH6	-.4VDC	.6VDC	6.3VAC	0V.	340VDC	130VDC	0V.		
V 6	6BH6	0V.	.5VDC	6.3VAC	0V.	340VDC	100VDC	0V.		
V 7	6BJ6	0V.	1 VDC	6.3VAC	0V.	340VDC	150VDC	0V.		
V 8	6AL5	NOT USED IN ALL MODELS.								
V 9	6BH6	#6.5VDC	#65VDC	6.3VAC	0V.	#-38VDC	#85VDC	#65VDC		
V 10	6AH6	-.2VDC	0V.	6.3VAC	0V.	270VDC	300VDC	5.5VDC		
V 11	6BH6	0V.	.8VDC	0V.	6.3VAC	340VDC	130VDC	0V.		
V 12	6BH6	-.5VDC	0V.	6.3VAC	0V.	70VDC	70VDC	0V.		
V 13	6AL5	-4.4VDC	-.8VDC	6.3VAC	0V.	0V.	0V.	-4.6VDC		
V 14	6AV6	-.4VDC	0V.	6.3VAC	0V.	0V.	0V.	100VDC		
V 15	6Y6G	#-24 VDC	#0V.	#247VDC	#270VDC	#65VDC	0V.	6.3VAC		
V 16	12AT7	50VDC	-.1VDC	0V.	6.3VAC	6.3VAC	45VDC	-1VDC	0V.	0V.
V 17	12AU7	85VDC	-.1VDC	3.7VDC	0V.	0V.	420VDC	0V.	15VDC	6.3VAC
V 18	12AU7	75VDC	.7VDC	3.4VDC	6.3VAC	6.3VAC	110VDC 65VDC	-27VDC	3.4VDC	0V.
V 19	6AQ5	.1VDC	10VDC 37VDC	6.3VAC	0V.	310VDC	310VDC	.1VDC		
V 20	6AL5	5.3VDC	-3VDC	0V.	6.3VAC	0V.	0V.	0V.		
V 21	12AU7	190VDC	-.1VDC	9VDC	6.3VAC	6.3VAC	105VDC	-3.1VDC	8.8VDC	0V.
V 22	7A5	0V.	*	105VDC	105VDC	3.4VDC	3.4VDC	15VDC	6.3VAC	
V 23	7A5	0V.	*	105VDC	105VDC	3.4VDC	3.4VDC	15VDC	6.3VAC	
V 24	7A5	0V.	*	105VDC	105VDC	3.4VDC	3.4VDC	15VDC	6.3VAC	
V 25	6W4GT	0V.	0V.	*	0V.	47VDC	0V.	▲6.3VAC	▲6.3VAC	
V 26	6Y6G	0V.	0V.	320VDC	110VDC	9.8VDC	0V.	6.3VAC	0V.	
V 27	1B3GT	* DO NOT MEASURE.								
V 28	5U4G	0V.	380VDC	27VAC	345VAC	0V.	345VAC	0V.	380VDC	
V 29	5U4G	0V.	380VDC	0V.	340VAC	0V.	340VAC	0V.	380VDC	
V 30	16JP4	0V.	0V.	PIN 10 340VDC	PIN 11 150VDC	PIN 12 6.3VAC				

FOCUS CONTROL IN THE FULLY COUNTERCLOCKWISE POSITION FOR THESE MEASUREMENTS.
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
# MEASURED FROM PIN 5 OF V25.
▲ MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	2.4 Meg.	0Ω	.1Ω	0Ω	†14KΩ	#3KΩ	0Ω		
V 2	6AG5	1 Meg.	0Ω	.1Ω	0Ω	†1.1KΩ	†86KΩ	0Ω		
V 3	6C4	†10.8KΩ	Inf.	0Ω	.1Ω	†10.8KΩ	22KΩ	470Ω		
V 4	6BH6	2.5 Meg.	100Ω	.1Ω	0Ω	†1.1KΩ	#3KΩ	0Ω		
V 5	6BH6	2.4 Meg.	100Ω	.1Ω	0Ω	†150Ω	#3KΩ	0Ω		
V 6	6BH6	6.8KΩ	68Ω	.1Ω	0Ω	†150Ω	†100KΩ	0Ω		
V 7	6BJ6	.1Ω	68Ω	.1Ω	0Ω	†150Ω	†47KΩ	0Ω		
V 8	6AL5	NOT USED IN ALL MODELS.								
V 9	6BH6	30KΩ	#3KΩ	.1Ω	0Ω	220KΩ	#2KΩ	#3KΩ		
V 10	6AH6	4.7KΩ	0Ω	.1Ω	0Ω	†13.6KΩ	†68KΩ	1.5KΩ		
V 11	6BH6	1.9Ω	100Ω	0Ω	.1Ω	†150Ω	#2KΩ	0Ω		
V 12	6BH6	47KΩ	0Ω	.1Ω	0Ω	†68KΩ	†68KΩ	0Ω		
V 13	6AL5	Inf.	Inf.	.1Ω	0Ω	0Ω	0Ω	20KΩ		
V 14	6AV6	10 Meg.	0Ω	.1Ω	0Ω	Inf.	0Ω	†320KΩ		
V 15	6Y6G	1 Meg.	0Ω	†660Ω	400Ω	#470KΩ	Inf.	.1Ω	#2.3KΩ	
V 16	12AT7	27KΩ	14.7KΩ	0Ω	.1Ω	.1Ω	20KΩ	1 Meg.	0Ω	0Ω
V 17	12AU7	#17KΩ	1 Meg.	1.3KΩ	0Ω	0Ω	†2.9KΩ	2.2 Meg.	2.7KΩ	.1Ω
V 18	12AU7	†100KΩ	38KΩ	1000Ω	.1Ω	.1Ω	†440KΩ †1.4 Meg.	470KΩ	1000Ω	0Ω
V 19	6AQ5	2.2 Meg.	5.5KΩ 470Ω	.1Ω	0Ω	†800Ω	†800Ω	2.2 Meg.		
V 20	6AL5	4.8 Meg.	4.8 Meg.	0Ω	.1Ω	68KΩ	0Ω	68KΩ		
V 21	12AU7	†34KΩ	5 Meg.	1.8KΩ	.1Ω	.1Ω	†230KΩ	220KΩ	1.9KΩ	0Ω
V 22	7A5	0Ω	†540Ω †5KΩ	†11KΩ	†11KΩ	100KΩ	100KΩ	150Ω	.1Ω	
V 23	7A5	0Ω	†540Ω †5KΩ	†11KΩ	†11KΩ	100KΩ	100KΩ	150Ω	.1Ω	
V 24	7A5	0Ω	†540Ω †5KΩ	†11KΩ	†11KΩ	100KΩ	100KΩ	150Ω	.1Ω	
V 25	6W4GT	Inf.	Inf.	†540Ω †5KΩ	Inf.	#0Ω	Inf.	†540Ω †5KΩ	†540Ω †5KΩ	
V 26	6Y6G	0Ω	0Ω	†480Ω	†33KΩ	68KΩ	17Ω	.1Ω	0Ω	
V 27	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP 500Ω
V 28	5U4G	0Ω	40KΩ	280KΩ	17Ω	Inf.	17Ω	Inf.	40KΩ	
V 29	5U4G	0Ω	40KΩ	Inf.	19Ω	Inf.	19Ω	Inf.	40KΩ	
V 30	16JP4	0Ω	6.5Ω	PIN 10 †150Ω	PIN 11 44KΩ	PIN 12 .1Ω				

† MEASURED FROM PIN 2 OF V29.
# MEASURED FROM PIN 5 OF V25.
FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION FOR THESE MEASUREMENTS.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal "ringing" coil slug (B1) until the picture synchronizes horizontally.

Turn the width control until the picture fills the mask horizontally.

HIGH VOLTAGE OSCILLATOR ADJUSTMENT

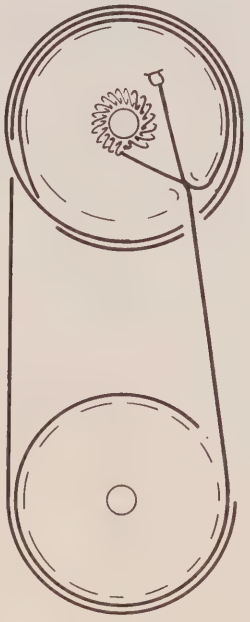
Connect 18 one megohm, one watt, resistor in series between the high voltage lead and chassis.

Connect the high voltage multiplier probe of a VTVM to the high voltage lead, connect the common lead to chassis.

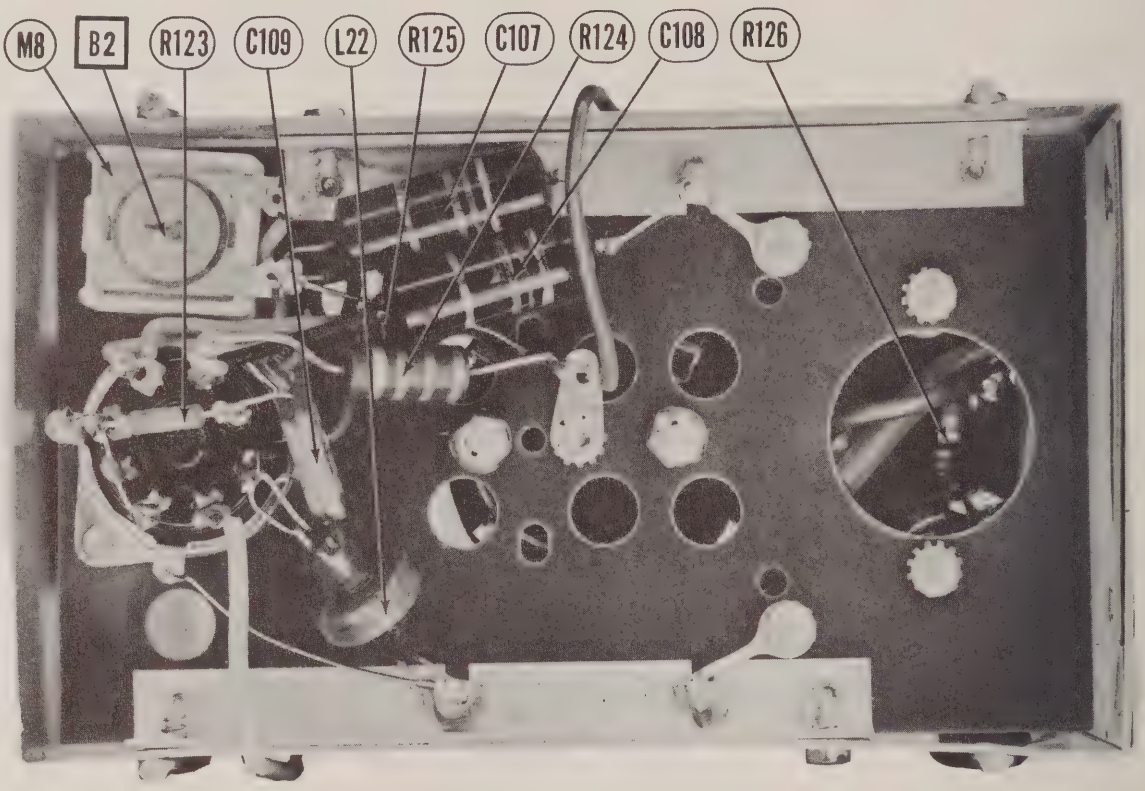
Adjust the high voltage oscillator trimmer (B2) until the meter reads 9.3KV.

DISASSEMBLY INSTRUCTIONS

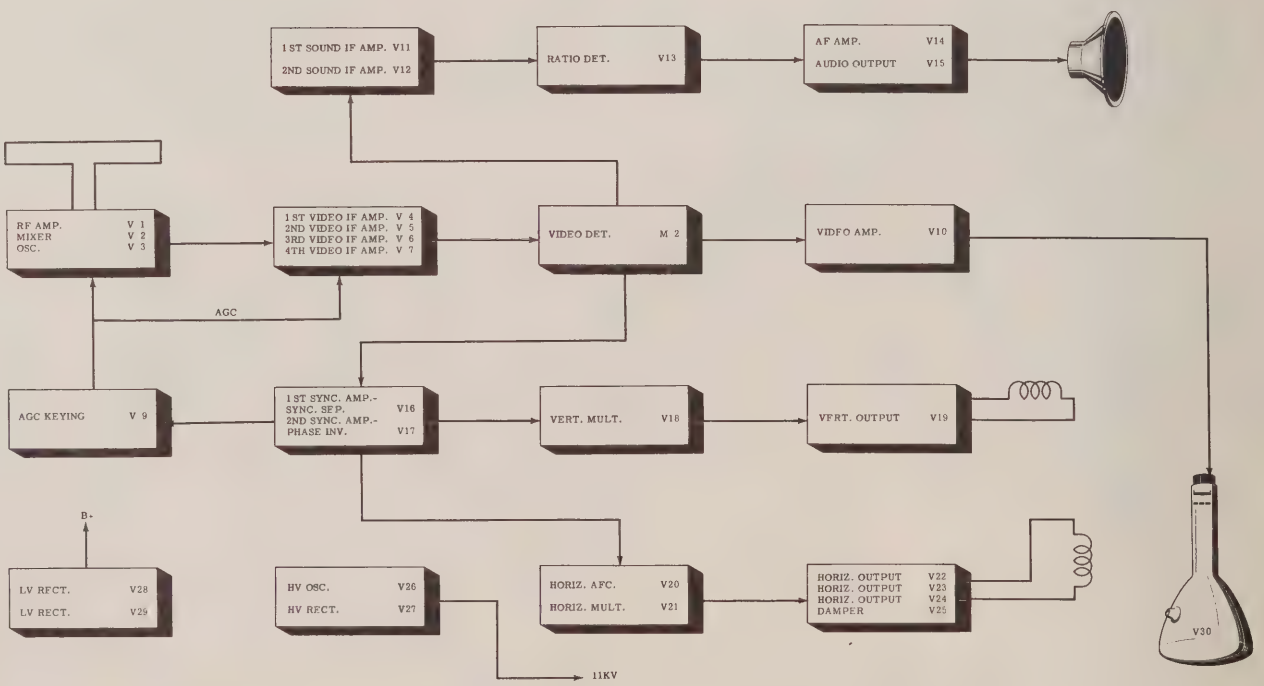
1. Remove nine push-on type control knobs from front of set.
2. Remove ten screws holding rear cover. Remove cover.
3. Disconnect picture tube socket and deflection yoke plug. Free deflection lead from lead guide.
4. Disconnect HV lead at picture tube snap.
5. Loosen two screws to disconnect built-in antenna.
6. Disconnect speaker at chassis plug.
7. Remove screw connecting upper chassis bracket to cabinet bracket.
8. Remove three 7/16" hex head bolts holding chassis. Remove chassis.
9. Remove four 11/32" hex nuts holding speaker. Remove speaker.



ANTENNA DRIVE CORD STRINGING



HIGH VOLTAGE SUPPLY - BOTTOM VIEW



BLOCK DIAGRAM

PHOTOFACT* Folder

*TRADE MARK

WILCOX-GAY MODEL OF439-1-C (CH. OF SERIES S)

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The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

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OF439-1-C (CH. OF SERIES S)

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3924 MEADE ST.
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Date 6/50 Set No. 98—Folder No. 15

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WILCOX-GAY
MODEL OF439-1-C (Ch. OF Series)

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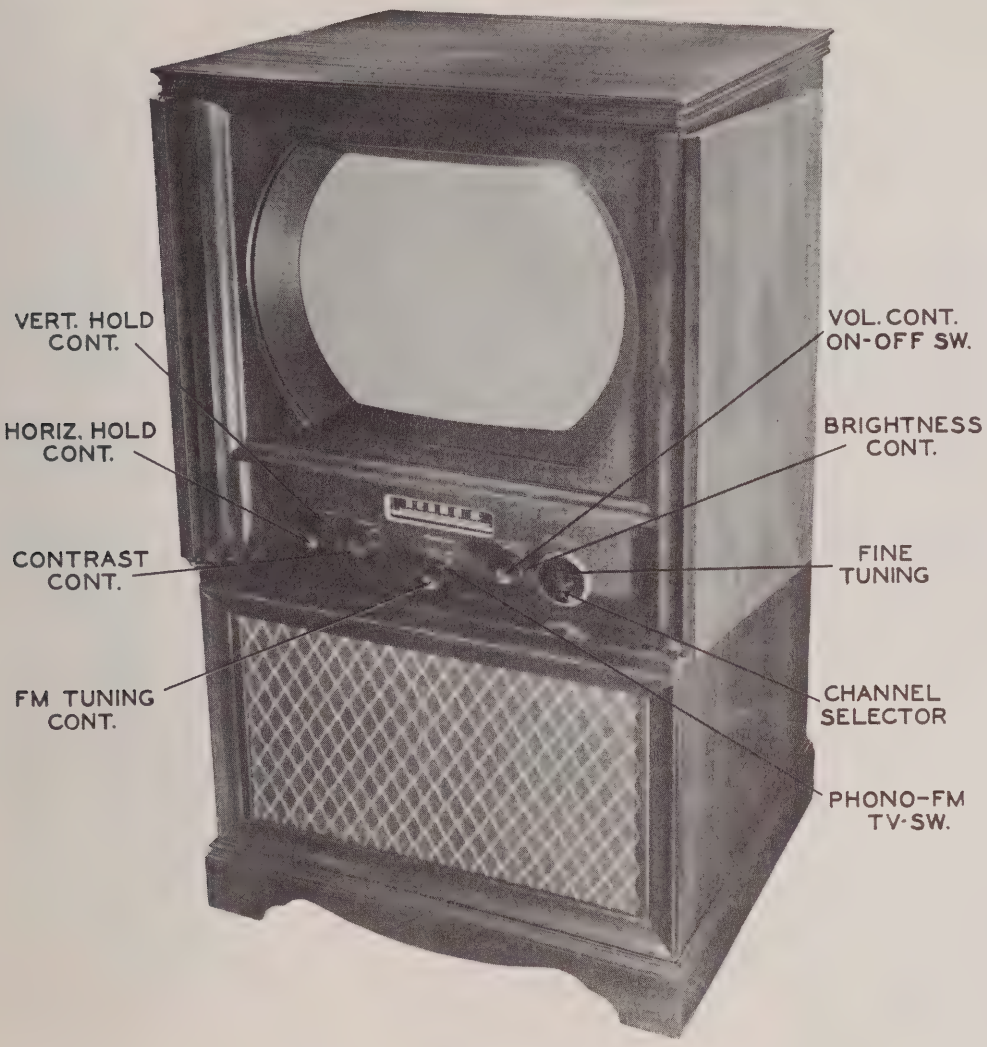

WILCOX-GAY
MODEL OF439-1-C (Ch. OF Series)

TRADE NAME	Wilcox-Gay Model OF 439-1-C (Ch. OF Series)
MANUFACTURER	Wilcox-Gay Corp., 604 Seminary St., Charlotte, Mich.
TYPE SET	Television Receiver
TUBES	Twenty Three

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 2.4 Amp. at 117 Volts AC
TUNING RANGE—Channels 2 thru 13

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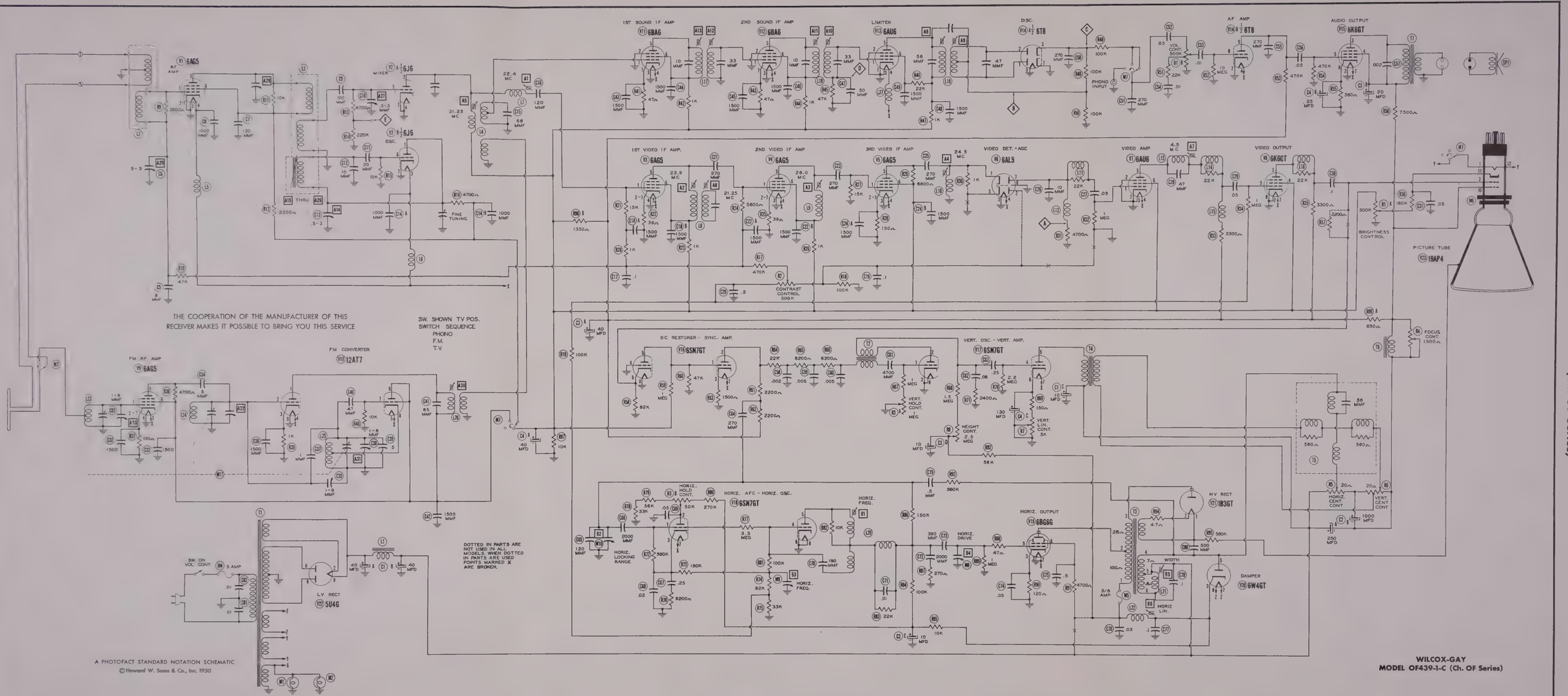
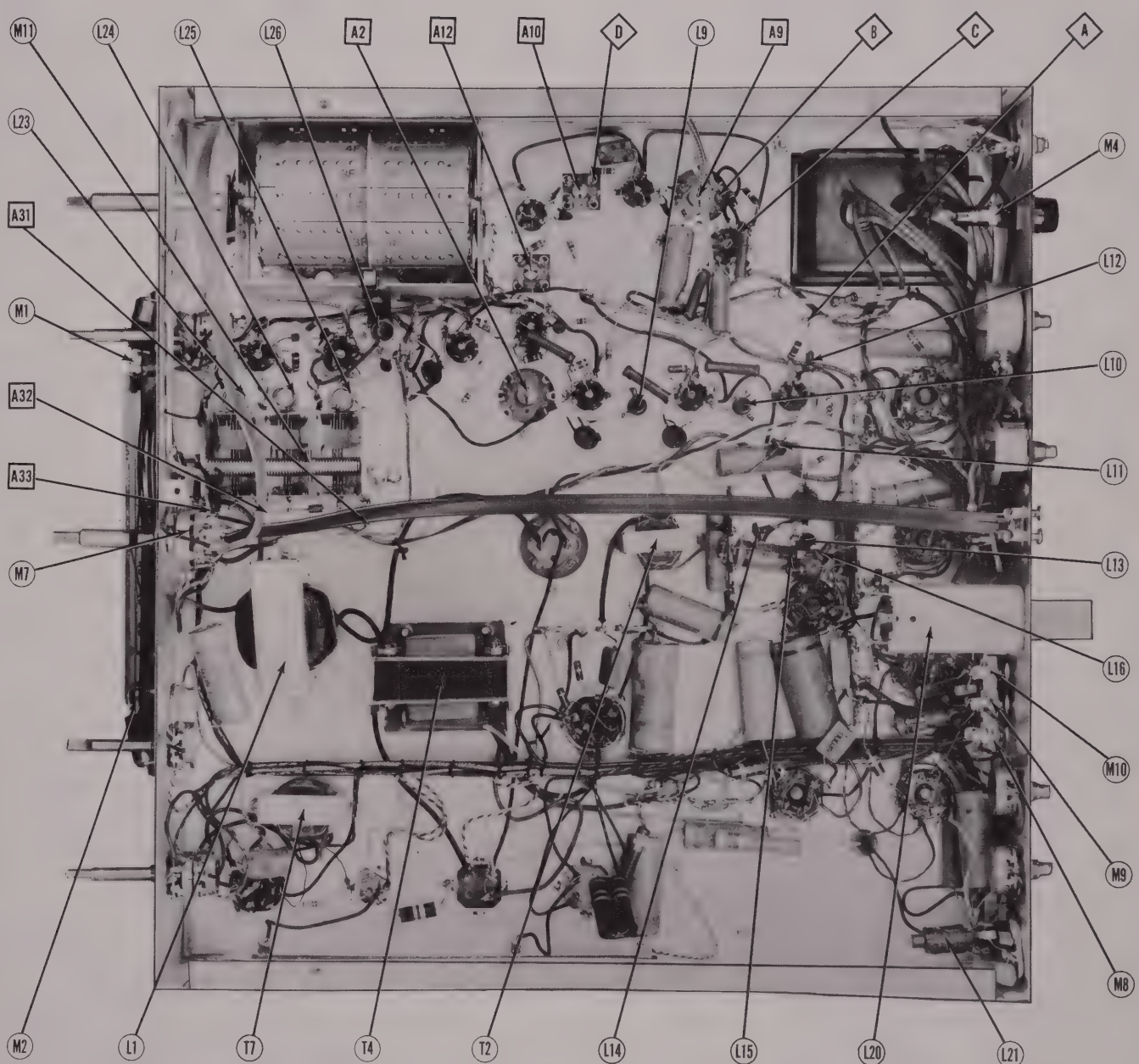
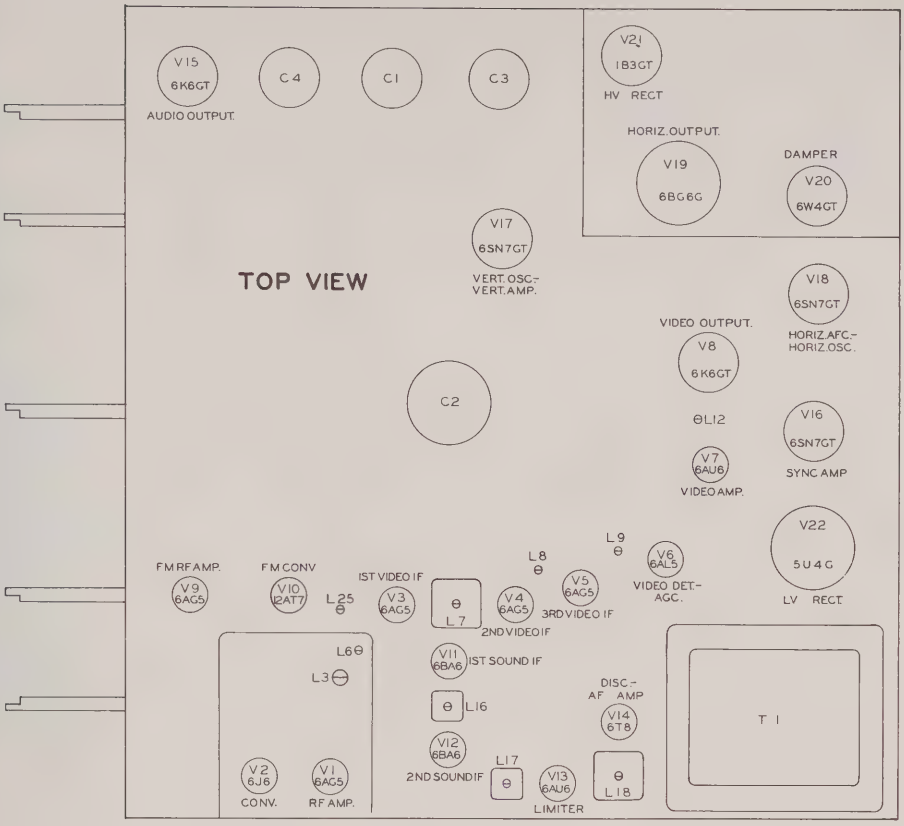


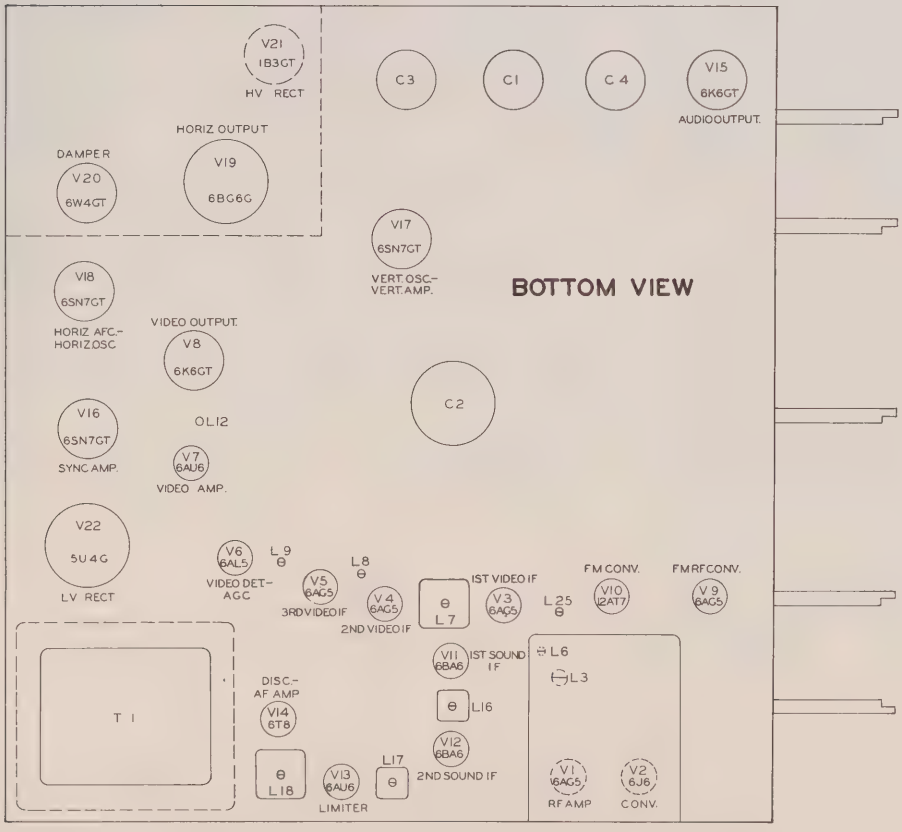
WILCOX-GAY
MODEL OF439-1-C (Ch. OF Series)

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If the set is to be aligned with the picture tube removed, the end of the high voltage lead should be securely taped and dressed away from the chassis. Do not remove the horizontal oscillator tube.

Turn the PHONO-FM-TEL. switch to "TEL." (maximum clockwise).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over dummy mixer tube (V2). Low side to chassis.	22.4MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	Direct	"	23.9MC	"	"	A2	"
3.	Direct	"	26MC	"	"	A3	"
4.	Direct	"	24.5MC	"	"	A4	"
5.	Direct	"	21.25MC (maximum output)	"	"	A5, A6	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to ungrounded tube shield floating over dummy mixer tube (V2). Low side to chassis.	25MC (10MC SWP)	21.25MC 22.75MC 25.75MC	Any	Vert. Amp. to Point (B). Low side to chassis.		Check for response curve similar to figure 1 with markers as shown. If necessary retouch A1 thru A4 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V7). Low side to chassis.	Not used	4.5MC (400 ∿ Mod.)	Any	Vert. Amp. to pin 2 (Grid) of picture tube. Low side to chassis.	A7	Adjust for minimum 400∿ indication on scope. If no scope is available, use a VTVM with a RF probe and adjust for minimum deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V13). Low side to chassis.	21.25MC (Unmod.)	Any	DC Probe thru 1 Meg. to Point (B). Common to chassis.	A8	Adjust for maximum deflection.
9.	.01MFD	"	"	"	DC Probe thru 1 Meg. to Point (C). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
10.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V11). Low side to chassis.	"	"	DC Probe thru 1 Meg. to Point (D). Common to chassis.	A10, A11, A12, A13	Adjust for maximum deflection.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V11). Low side to chassis.	21.25MC (450KC Sweep)	21.25MC	Any	Vert. Amp. thru 1 Meg. to Point (D). Low side to chassis.	A10, A11, A12, A13	Adjust for maximum amplitude and symmetry as per figure 2.
9.	.01MFD	"	"	"	"	Vert. Amp. to Point (C) Low side to chassis.	A9, A8	Adjust A9 so 21.25MC occurs at center of crossover lines as per figure 3. Adjust A8 for maximum amplitude and straightness of crossover lines. Continue with step 11.

OSCILLATOR ALIGNMENT

Replace the original converter tube (V2) in its socket.

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A14. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A14 will not bring all channels within the range of the fine tuning control, it will be necessary to adjust the individual channel oscillator adjustment for each channel that is off frequency. The individual channel oscillator adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC Probe to Point (B). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A16	
			203.75MC	11		A17	
			197.75MC	10		A18	
			191.75MC	9		A19	
			185.75MC	8		A20	
			179.75MC	7		A21	
			87.75MC	6		A22	
			81.75MC	5		A23	
			71.75MC	4		A24	
			65.75MC	3		A25	
			59.75MC	2		A26	

RF AND MIXER ALIGNMENT

The RF and mixer adjustments in this receiver have been pre-set at the factory and are normally very stable. Alignment of this portion should not be attempted unless they are definitely known to be out of alignment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to Point E. Low side to chassis.	A27, A28, A29	Adjust for response curve similar to figure 4 with markers above 90%.
13.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check for response similar to figure 4. If markers fall below 70% on any channel, make slight adjustment of A27, A28, A29 with channel selector set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

FM RADIO RF ALIGNMENT

Turn the PHONO-FM-TEL. switch to "FM" (center-position).
The converter plate coil A30 is peaked at 21.25MC in the same manner as the TV sound IF transformers. Connect the signal generator to pin 2 of the 12AT7 (V10) and the VTVM or scope as outlined under "SOUND IF ALIGNMENT".
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
14.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	108MC (Unmod.)	FM	108MC	DC Probe to Point D. Common to chassis.	A31, A32, A33	Adjust for maximum deflection.
15.	"	"	90MC	"	90MC	"	L24, L23, L22	Check coils with a tuning wand. If necessary expand or compress coil turns for maximum deflection. If coils are adjusted, repeat steps 14 and 15.

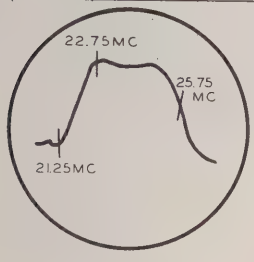


FIG. 1

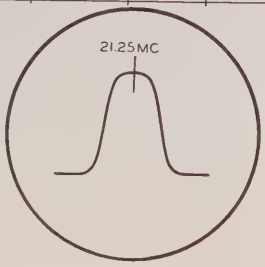


FIG. 2

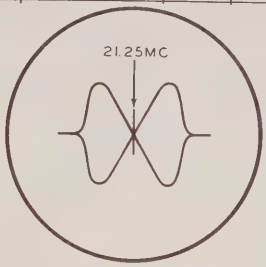
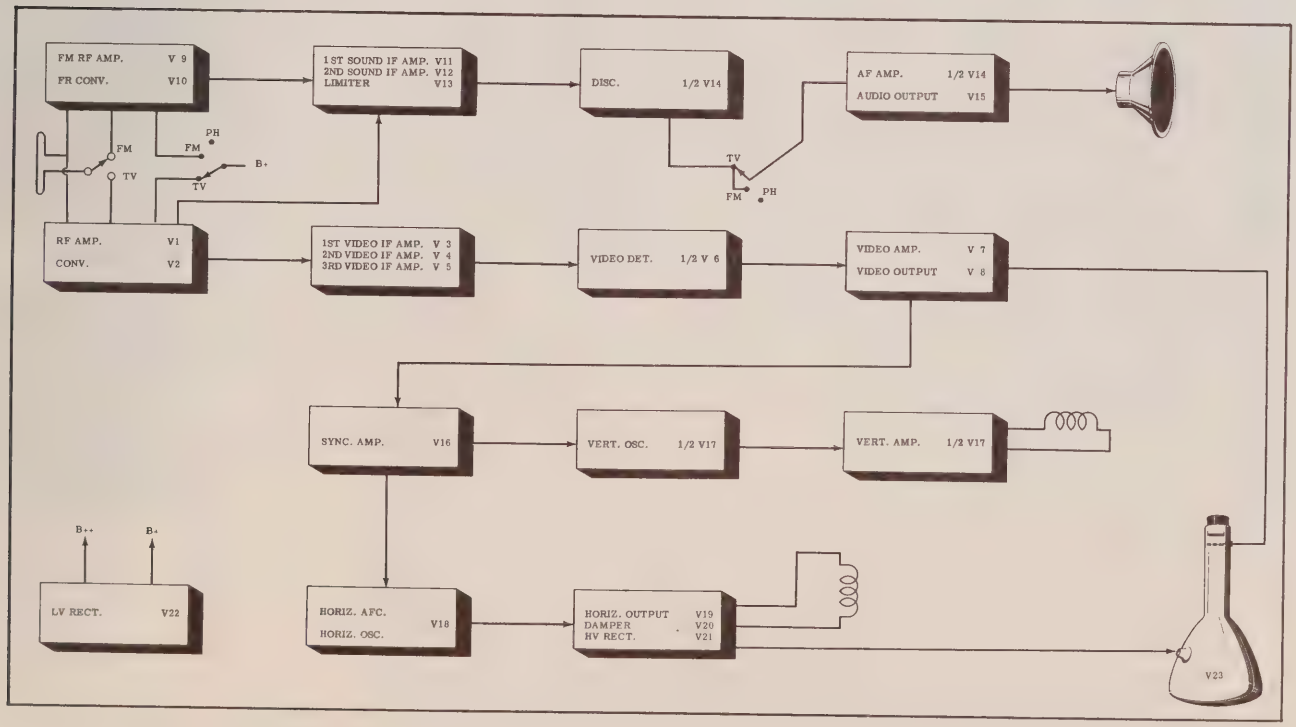


FIG. 3

FIG. 4



BLOCK DIAGRAM

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-5.3VDC	0V.	0V.	6.3VAC	150VDC	150VDC	0V.		
V 2	6J6	110VDC	150VDC	6.3VAC	0V.	-.9VDC	§-3VDC	0V.		
V 3	6AG5	-6VDC	0V.	6.3VAC	0V.	150VDC	150VDC	0V.		
V 4	6AG5	-6.2VDC	0V.	0V.	6.3VAC	150VDC	150VDC	0V.		
V 5	6AG5	0V.	1.5VDC	0V.	6.3VAC	90VDC	150VDC	1.5VDC		
V 6	6AL5	0V.	0V.	0V.	6.3VAC	0V.	0V.	-.1VDC		
V 7	6AU6	-.6VDC	0V.	0V.	6.3VAC	290VDC	150VDC	0V.		
V 8	6K6GT	-6.4VDC	0V.	260VDC	150VDC	-1.4VDC	0V.	6.3VAC	0V.	
‡ V 9	6AG5	0V.	1.3VDC	6.3VAC	0V.	95VDC	150VDC	1.3VDC		
‡ V 10	12AT7	150VDC	0V.	2VDC	6.3VAC	6.3VAC	150VDC	§-3.6VDC	0V.	0V.
V 11	6BA6	0V.	0V.	0V.	6.3VAC	130VDC	130VDC	1VDC		
V 12	6BA6	0V.	0V.	0V.	6.3VAC	130VDC	130VDC	1VDC		
V 13	6AU6	-.2VDC	0V.	0V.	6.3VAC	145VDC	80VDC	0V.		
V 14	6T8	-1.3VDC	-8.6VDC	-.1VDC	6.3VAC	0V.	0V.	0V.	-.6VDC	
V 15	6K6GT	0V.	0V.	210VDC	220VDC	0V.	0V.	6.3VAC	13VDC	
V 16	6SN7GT	12.5VDC	105VDC	13VDC	0V.	12.5VDC	1.1VDC	6.3VAC	0V.	
V 17	6SN7GT	-3.5VDC	170VDC 85VDC	0V.	-1.4VDC	400VDC	3.3VDC 19VDC	6.3VAC	0V.	
V 18	6SN7GT	-11VDC	85VDC	-22VDC	-55VDC	230VDC	0V.	6.3VAC	0V.	
V 19	6BG6G	0V.	0V.	14VDC	0V.	.1VDC	.1VDC	6.3VAC	320VDC	TOP CAP *
V 20	6W4GT	395VDC	0V.	530VDC	0V.	410VDC	485VDC	¶	¶	
V 21	1B3GT	* DO NOT MEASURE.								
V 22	5U4G	0V.	430VDC	0V.	430VAC	0V.	430VAC	145VDC	430VDC	
V 23	19AP4	¶	1.3VDC	PIN 10 410VDC	PIN 11 150VDC	PIN 12 ¶				

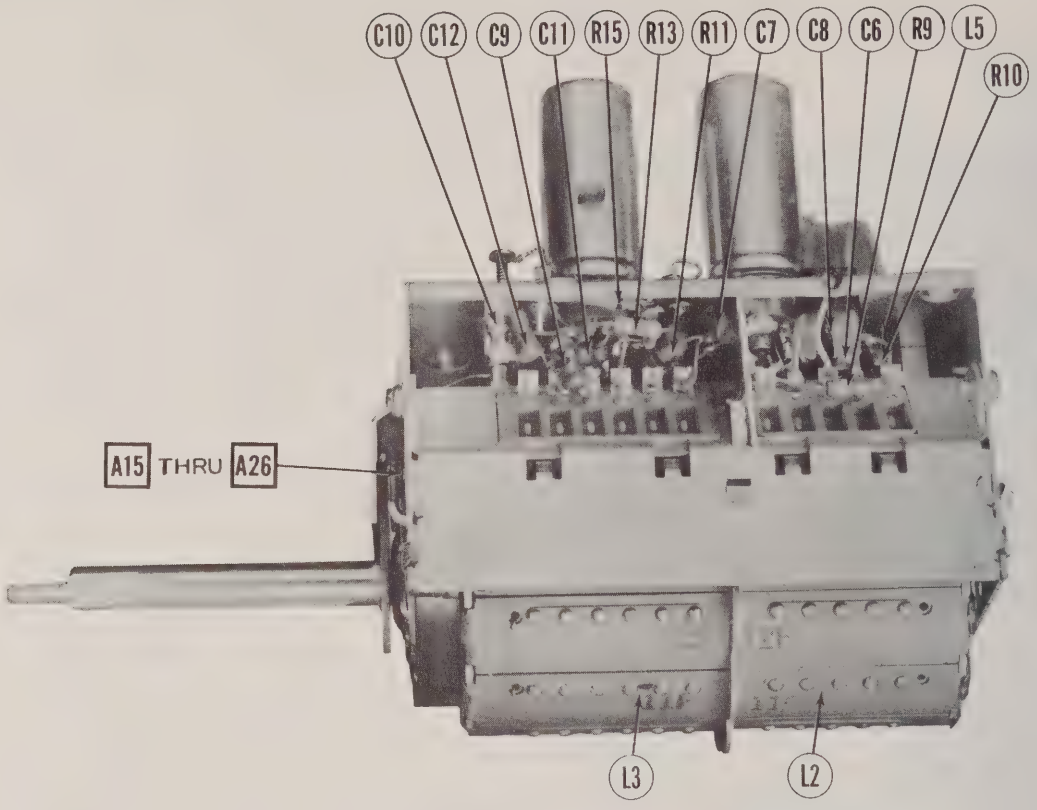
¶ 6.3VAC MEASURED ACROSS FILAMENTS.
‡ MEASURED IN "FM" POSITION.

RESISTANCE READINGS

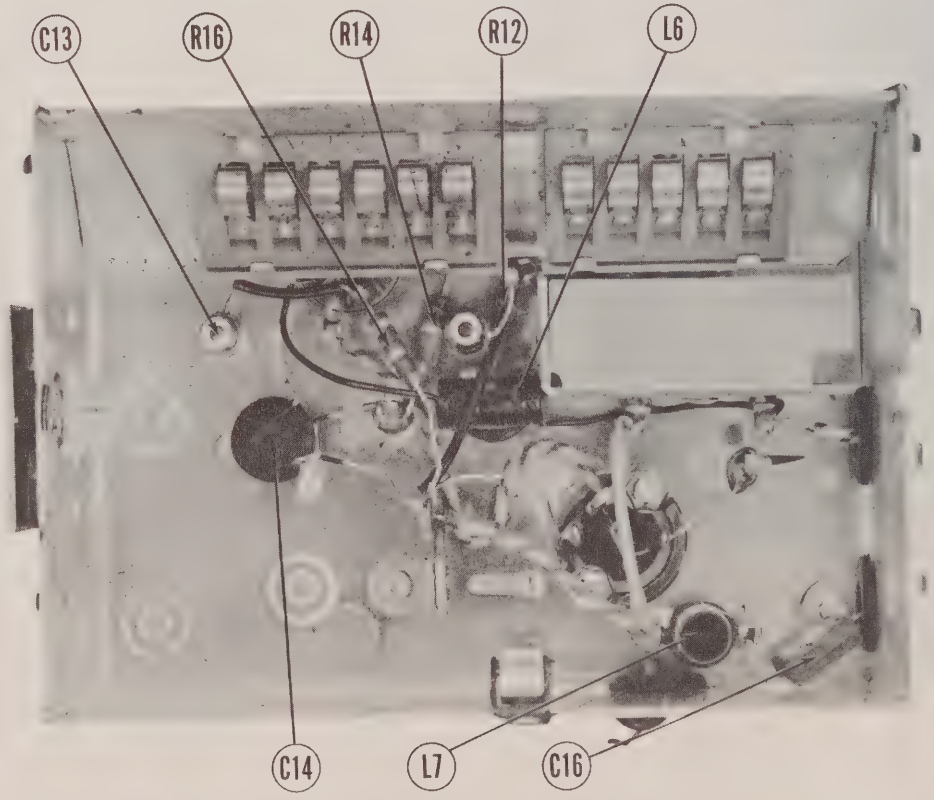
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	160KΩ	0Ω	0Ω	.1Ω	†4.6KΩ	†4.6KΩ	0Ω		
V 2	6J6	†7.5KΩ	†2.6KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AG5	125KΩ	39Ω	.1Ω	0Ω	†3.6KΩ	†3.6KΩ	39Ω		
V 4	6AG5	110KΩ	39Ω	0Ω	.1Ω	†3.6KΩ	†3.6KΩ	39Ω		
V 5	6AG5	15KΩ	150Ω	0Ω	.1Ω	†9.4KΩ	†2.6KΩ	150Ω		
V 6	6AL5	.2Ω	Inf.	0Ω	.1Ω	0Ω	0Ω	4.7KΩ		
V 7	6AU6	1.1 Meg.	0Ω	0Ω	.1Ω	†4.4KΩ	†2.6KΩ	0Ω		
V 8	6K6GT	100KΩ	0Ω	†4.4KΩ	†2.6KΩ	1.1 Meg.	Inf.	.1Ω	0Ω	
‡ V 9	6AG5	0Ω	100Ω	.1Ω	0Ω	†7.5KΩ	†2.6KΩ	100Ω		
‡ V 10	12AT7	†2.6KΩ	0Ω	1000Ω	.1Ω	.1Ω	†2.6KΩ	10KΩ	0Ω	0Ω
V 11	6BA6	0Ω	0Ω	0Ω	.1Ω	†3.6KΩ	†3.6KΩ	47Ω		
V 12	6BA6	.1Ω	0Ω	0Ω	.1Ω	†3.6KΩ	†3.6KΩ	47Ω		
V 13	6AU6	47KΩ	0Ω	0Ω	.1Ω	†3.6KΩ	†25KΩ	0Ω		
V 14	6T8	100KΩ	100KΩ	200KΩ	.1Ω	0Ω	0Ω	0Ω	10 Meg.	†470KΩ
V 15	6K6GT	Inf.	0Ω	†9KΩ	†8.4KΩ	470KΩ	1Ω	.1Ω	560Ω	
V 16	6SN7GT	†60KΩ	†8KΩ	1.5KΩ	0Ω	†60KΩ	82KΩ	.1Ω	0Ω	
V 17	6SN7GT	2 Meg.	▲2 Meg. ▲4.5 Meg.	0Ω	2.2Meg.	†600Ω	5.1KΩ 150Ω	.1Ω	0Ω	
V 18	6SN7GT	850KΩ	▲340KΩ	325KΩ	240KΩ	▲115KΩ	0Ω	.1Ω	0Ω	
V 19	6BG6G	Inf.	0Ω	120Ω	Inf.	1 Meg.	1 Meg.	.1Ω	†5KΩ	TOP CAP ▲150Ω
V 20	6W4GT	†560KΩ	Inf.	▲0Ω	Inf.	†70Ω	▲10KΩ	Inf.	Inf.	
V 21	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ▲400Ω
V 22	5U4G	Inf.	12KΩ	Inf.	24Ω	Inf.	24Ω	200KΩ	12KΩ	
V 23	19AP4	Inf.	82KΩ	PIN 10 †95Ω	PIN 11 180KΩ	PIN 12 Inf.				

FOCUS CONTROL IN FULLY COUNTERCLOCKWISE POSITION FOR THESE MEASUREMENTS.
† MEASURED FROM PIN 8 OF V22.
▲ MEASURED FROM PIN 3 OF V20.
‡ TAKEN IN "FM" POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



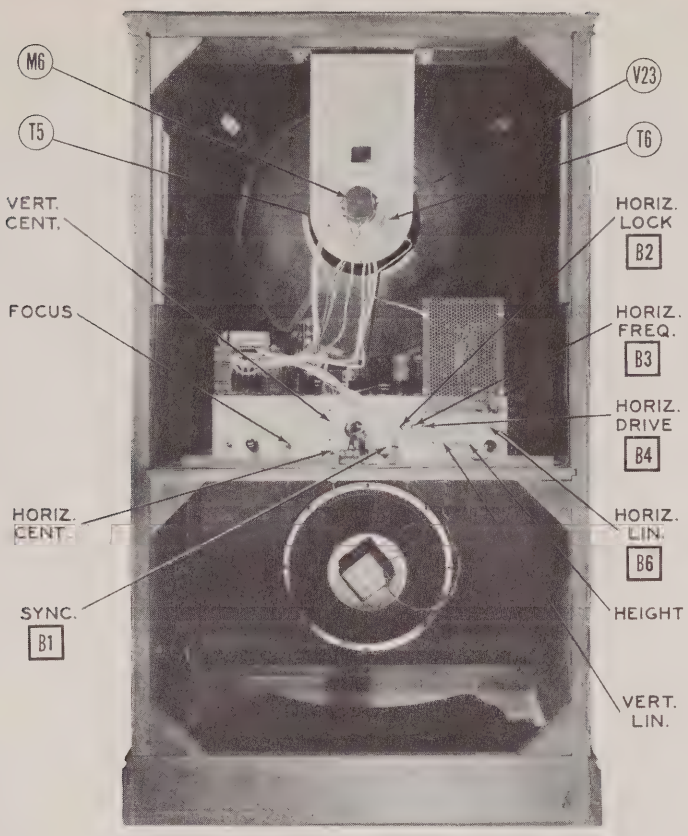
RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal oscillator slug (B1) until 3/4 inch of threaded shaft protrudes out of the can.

Turn the horizontal hold control to the mid position of its range.

Adjust the horizontal lock trimmer (B2), and the horizontal frequency trimmer (B3) until the picture synchronizes horizontally. The picture should remain in sync over 3/4 of the hold control range.

Adjust the horizontal drive trimmer (B4) for best compromise between width and horizontal linearity.

Adjust the width slug (B5) until the picture is of proper size horizontally.

Adjust the horizontal linearity slug (B6) until the picture is symmetrical from left to right. Readjustment of B4 may be necessary for optimum results.

DISASSEMBLY INSTRUCTIONS

1. Remove nine push-on type control knobs from front of set.
2. Remove ten screws holding rear cover. Remove cover.
3. Remove picture tube socket. Disconnect deflection yoke plug at chassis.
4. Disconnect built-in antenna at chassis terminal.
5. Remove speaker plug at chassis connection.
6. Loosen 1/4" hex head holding yoke ground lead on H.V. cover. Remove lead.
7. Remove screw holding picture tube support ground lead. Remove lead.
8. Disconnect H.V. lead atebayonet plug.
9. Remove four Phillips head bolts holding chassis at bottom. Move front chassis brace to one side in order to remove chassis.
10. Remove chassis by first lifting upward and then pulling to rear and out of cabinet.
11. Remove four 5/16 inch hex nuts holding speaker. Remove speaker.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WILCOX-GAY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.		6AG5	7BD	
V2	Converter		6J6	7BF	
V3	1st Video IF		6AG5	7BD	
V4	2nd Video IF		6AG5	7BD	
V5	3rd Video IF		6AG5	7BD	
V6	Video Det. -AGC		6AL5	6BT	
V7	Video Amp.		6AU6	7BK	
V8	Video Output		6K6GT	7S	
V9	FM RF Amp.		6AG5	7BD	
V10	FM Converter		12AT7	9A	
V11	1st Sound IF		6BA6	7BK	
V12	2nd Sound IF		6BA6	7BK	
V13	Limiter		6AU6	7BK	
V14	Disc. -AF Amp.		6T8	9E	
V15	Audio Output		6K6GT	7S	
V16	DC Restorer-Sync. Amp.		6SN7GT	8BD	
V17	Vert. Osc. -Vert. Amp.		6SN7GT	8BD	
V18	Hor. AFC-Hor. Osc.		6SN7GT	8BD	
V19	Hor. Output		6BG6G	5BT	
V20	Damper		6W4GT	4CG	
V21	HV Rect.		1B3GT	3C	
V22	LV Rect.		5U4G	5T	
V23	Picture Tube		19AP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WILCOX-GAY PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450		AFH882J			TVL-30	▲ Filter
B	40	450						■ Filter
C	10	450						▲ Filter
C2A	250	10		AF50R200S			TVL-13	▲ Hor. Cent. Cont. Bypass
B	1000	6						▲ Vert. Cent. Cont. Bypass
C3A	40	450		AF6422J			TVL-40	▲ Filter
B	20	450						■ Output Decoupling
C	10	450						▲ Decoupling
D	10	450						Vert. Osc. Decoupling
C4A	40	150		AF84D				■ Filter
B	25	25		PRS25/100				▲ Output Cathode Bypass
C	130	15						Vert. Output Cathode Bypass
C5	5			SI5DNPO	D2-4.7	NPOK-5		Fixed Trimmer *
C6	.5-3				829-3			Variable Trimmer
C7	120			GP120K	D6-121	GP2K-120		RF Decoupling
C8	1000			GP1000M	D6-102	GP2L-001		RF Filament Bypass
C9	100			SI100KN750	DN-100	N750L-100		RF Coupling
C10	.5-3				829-3			Variable Trimmer
C11	20			SI20KNPO	D2-20	NPOK-20		Osc. Grid Cap.
C12	10			SI10DN750	DN-10	N750K-10		Fixed Trimmer
C13	.5-3				829-3			Variable Trimmer
C14A	1000			GP1000M	D6-102	882-2 x 0015	29C7	Conv. Filament Bypass
B	1000			GP1000M	D6-102			RF Bypass
C15	68	300		CN68JNPO	D2-68	NPOM-68		Fixed Trimmer
C16	120	300		GP120K	D6-121	GP2K-120		IF Coupling
C17	.1	400		P488-1			TM-1	Bias Filter *
C18A	1500			GP1500M	D6-152	882-2 x 0015	29C6	Bias Filter
B	1500			GP1500M	D6-152			1st V. IF Decoupling
C19	.1	600		P888-1			TM-1	Bias Filter
C20	.5	200		P288-5			TC-5	Bias Filter
C21	270			GP270M	D6-271	GP2K-270	1FM-325	IF Coupling
C22A	1500			GP1500M	D6-152	882-2 x 0015	29C6	AGC Filter
B	1500			GP1500M	D6-152			2nd V. IF Decoupling
C23	270			GP270M	D6-271	GP2K-270	1FM-325	IF Coupling
C24A	1500			GP1500M	D6-152	882-2 x 0015	29C6	3rd V. IF Cathode Bypass
B	1500			GP1500M	D6-152			RF Bypass
C25	270			GP270M	D6-271	GP2K-270	1FM-325	IF Coupling
C26	10	500		GP10K	D6-100	GP1K-10	MS-41	V. Diode Filter
C27	.05	600		P688-05			TM-15	Video Coupling *
C28	47			CN47KNPO	D2-47	NPOM-50	MS-45	Fixed Trimmer
C29	.05	600		P688-05			TM-15	Video Coupling
C30	.1	400		P488-1			TM-1	Video Coupling
C31	.05	600		P688-05			TM-15	Pic. Tube Cathode Bypass
C32	1500			GP1500M	D6-152	811-0015	29C3	FM RF Cathode Bypass
C33	1500			GP1500M	D6-152	811-0015	29C3	RF Bypass
C34	5			GP5K	D2-4.7	NPOK-5	MS-55	RF Coupling
C35	1-8				532-1-8			Variable Trimmer
C36	1500			GP1500M	D6-152	811-0015	29C3	Conv. Cathode Bypass
C37	1				D2-1			Osc. Coupling
C38	1-8				532-1-8			Variable Trimmer
C39	.5				D2-5			Fixed Trimmer
C40	47			GP47K	D6-470	GP1K-47	1FM-45	Osc. Grid Cap.
C41	85			CN85JNPO	D2-82	NPOM-85		Fixed Trimmer
C42	1500			GP1500M	D6-152	811-0015	29C3	RF Bypass
C43	1500			GP1500M	D6-152	811-0015	29C3	1st S. IF Cath. Bypass
C44	1500			GP1500M	D6-152	811-0015	29C3	1st S. IF Decoupling
C45	1500			GP1500M	D6-152	811-0015	29C3	2nd S. IF Cath. Bypass
C46	1500			GP1500M	D6-152	811-0015	29C3	2nd S. IF Decoupling
C47	50	500		GP50M	D6-500	GP1K-50	1FM-45	Limiter Grid Filter
C48	1500			GP1500M	D6-152	811-0015	29C3	Limiter Decoupling
C49	1500			GP1500M	D6-152	811-0015	29C3	Limiter Screen Bypass
C50	270			GP270M	D6-271	GP2K-270	1FM-325	RF Bypss
C51	270			GP270M	D6-271	GP2K-270	1FM-325	RF Bypass *
C52	.05	600		P688-05			TM-15	Audio Coupling
C53	.01	600		P688-01	D6-103	811-01	TM-11	Audio Coupling
C54	.01	600		P688-01	D6-103	811-01	TM-11	Tone Compensation

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WILCOX-GAY PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C55	270			GP270M	D6-271	GP2K-270	1FM-325	AF Amp. Plate Bypass
C56	.05	600		P688-05			TM-15	Audio Coupling
C57	.002	600		P688-002	D6-202	GP2M-002	TM-22	Output Plate Bypass
C58	.002	600		P688-002	D6-202	GP2M-002	TM-22	Integrator Net.
C59	.005	600		P688-005	D6-502	811-005	TM-25	Integrator Net.
C60	.005	600		P688-005	D6-502	811-005	TM-25	Integrator Net.
C61	4700	500		1467-005	D6-472	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C62	.08	600						Vert. Discharge
C63	.25	600		684-25			TC-2	Vert. Sweep Coupling
C64	270			GP270M	D6-271	GP2K-270	1FM-325	Hor. Sync. Coupling
C65	120	500		GP120K	D6-121	GP2K-120	1FM-315	Voltage Divider
C66	2000	500		1467-002	D6-202	GP2M-002	1FM-22	Hor. Sync. Coupling
C67	.25	600		684-25			TC-2	AFC Filter
C68	.02	600		P688-02			TM-12	AFC Filter
C69	.05	600		P688-05			TM-15	Hor. AFC Plate Bypass
C70	180	500		1468-0002	D6-181	GP2K-180	1FM-32	Hor. Osc. Grid Cap.
C71	.01	600		P688-01			TM-11	Fixed Trimmer *
C72	2000	500		1467-002	D6-202	GP2M-002	1FM-22	Hor. Discharge
C73	390	500		1468-0004	D6-391	GP2K-390	1FM-34	Hor. Sweep Coupling
C74	.05	600		P688-05			TM-15	Hor. Output Screen Bypass
C75	.5	200		P288-5			TC-2	Hor. Output Cath. Bypass
C76	.03	600		P688-03			TM-13	Damper Filter
C77	.1	600		P688-1			TM-1	Damper Filter
C78	.1	600		P688-1			TM-1	Fixed Trimmer
C79	5			GP5K	D2-4.7	NPOK-5	MS-55	Hor. Feedback
C80	500	20000			TV1-502			HV Filter
C81	.01	600		P688-01	D6-103	811-01	TM-11	Line Filter
C82	.01	600		P688-01	D6-103	811-01	TM-11	Line Filter
C83	1-8					532-1-8		Variable Trimmer

* Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Wilcox-Gay PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	1/2		B11-133 *			Brightness control-front
B	500KΩ	1/2		B13-133X *			Volume control-rear-tapped at 100KΩ
C	Shaft End Switch		19-2223	E-187 *			Attach per instructions in "Concentrikit".
D				76-1 *			Attach per instructions in "Concentrikit".
R2	500KΩ	1/2	19-2221	Q11-133	M-58-S	B-59	Contrast control
R3A	1 Meg.	1/2		B11-137 *			Vert. hold contrgl-front
B	50KΩ	1/2	19-2222	B11-123 *			Horiz. hold control-rear
C	Shaft End			E-187 *			Attach per instructions in "Concentrikit".
R4	1500Ω	4	19-2216		10-1500	V-131	Focus control-Wire Wound
R5	20Ω	2	19-2218	W-20	43-20	V-110	Horiz. centering control-Wire Wound
R6	20Ω	2	19-2217	W-20 x 10	43-20 CT	SVT-901	Vert. centering control-Wire Wound-tapped at 10Ω
R7A	5000Ω	1/2	19-2220	Q11-114	M-19-S	AN-10	Vert. linearity control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R7A per instructions
R8A	2.5 Meg.	1/2	19-2219	Q11-239	M-84-S	AN-83	Height control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R8A per instructions

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WILCOX-GAY PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R9	3900Ω	1		BTS-3900	Ant. Coil Shunt
R10	47KΩ 20%	1		BTS-47K	Bias Network
R11	10KΩ	1		BTS-10K	RF Plate Coil Shunt
R12	22000 Ω 20%	1		BTS-220K	RF Decoupling
R13	4700Ω	1		BTS-4700	Conv. Grid
R14	220KΩ 20%	1		BTS-220K	Conv. Grid
R15	10KΩ	1		BTS-10K	Osc. Grid
R16	4700Ω	1		BTS-4700	Osc. Plate
R17	470KΩ	1		BTS-470K	Bias Network
R18	100KΩ	1		BTS-100K	Bias Network
R19	100KΩ	1		BTS-100K	Bias Network
R20	1000Ω	1		BTS-1000	Bias Network
R21	15KΩ	1		BTS-15K	1st Video IF Grid
R22	39Ω	1			1st Video IF Cathode
R23	1000Ω	1		BTS-1000	1st Video IF Decoupling
R24	5600Ω	1			2nd Video IF Grid
R25	39Ω	1			2nd Video IF Cathode
R26	1000Ω	1		BTS-1000	2nd Video IF Decoupling
R27	15KΩ	1		BTS-15K	3rd Video IF Grid
R28	150Ω	1			3rd Video IF Cathode
R29	6800Ω	1		BTS-6800	3rd Video IF Plate
R30	1000Ω	1		BTS-1000	4th Video IF Coil Shunt-See Note 1
R31	4700Ω	1		BTS-4700	Video Det. Diode Load
R32	1 Meg.	1		BTS-1 Meg.	Video Amp. Grid-See Note 1
R33	3300Ω	1		BTA-3300	Video Amp. Plate
R34	1 Meg.	1		BTS-1 Meg.	Video Output Grid
R35	3300Ω	1		BTA-3300	Video Output Plate
R36	180KΩ	1		BTS-180K	Voltage Divider
R37	100Ω	1			FM RF Cathode
R38	4700Ω	1		BTS-4700	FM RF Plate
R39	1000Ω	1		BTS-1000	FM Conv. Cathode
R40	10KΩ	1		BTS-10K	FM Osc. Grid
R41	47Ω	1			1st Sound IF Cathode
R42	1000Ω	1		BTS-1000	1st Sound IF Decoupling
R43	47Ω	1			2nd Sound IF Cathode
R44	1000Ω	1		BTS-1000	2nd Sound IF Decoupling
R45	47KΩ	1			Limiter Grid
R46	22KΩ	1		BTS-22K	Limiter Screen-See Note 1
R47	1000Ω	1		BTS-1000	Limiter Decoupling-See Note 2
R48	100KΩ	1		BTS-100K	De-emphasis -See Note 1

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WILCOX-GAY PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R49	100KΩ	1		BTS-100K	Disc. Diode Load
R50	100KΩ	1		BTS-100K	Disc. Diode Load
R51	22KΩ	1		BTS-22K	Tone Compensation
R52	10 Meg.	1		BTS-10 Meg.	AF Amp. Grid
R53	470KΩ	1		BTS-470K	AF Amp. Plate
R54	470KΩ	1		BTS-470K	Output Grid
R55	560Ω	1		BTS-560	Output Cathode
R56	7500Ω	4		AB-7500	Filter-See Note 3
R57	2200Ω	1		BTS-2200	Picture Tube Grid-See Note 1
R58	82KΩ	1		BTS-82K	DC Rest. Load-See Note 4
R59	1 Meg.	1		BTS-1 Meg.	Voltage Divider-See Note 5
R60	47KΩ	1		BTS-47K	Sync. Amp. Grid-See Note 1
R61	2200Ω	1		BTS-2200	Sync. Amp. Plate
R62	2200Ω	1		BTS-2200	Sync. Amp. Plate
R63	1500Ω	1		BTS-1500	Sync. Amp. Cathode
R64	22KΩ	1		BTS-22K	Integrator Network
R65	8200Ω	1		BTS-8200	Integrator Network
R66	8200Ω	1		BTS-8200	Integrator Network
R67	1 Meg.	1		BTS-1 Meg.	Vert. Osc. Grid
R68	1.5 Meg.	1		BTS-1.5 Meg.	Vert. Osc. Plate
R69	150Ω	1		BW-½-150	Vert. Amp. Cathode
R70	2.2 Meg.	1		BTS-2.2 Meg.	Vert. Amp. Grid
R71	2400Ω	1			Vert. Peaking
R72	560KΩ	1		BTS-560K	Horiz. AFC Grid
R73	180KΩ	1		BTS-180K	Horiz. AFC Cathode
R74	82KΩ	1		BTS-82K	Horiz. AFC Cathode
R75	33KΩ	1		BTS-33K	Bias Network
R76	8200Ω	1		BTS-8200	Horiz. AFC Filter Network
R77	3.3 Meg.	1		BTS-3.3 Meg.	Voltage Divider
R78	33KΩ	1			Voltage Divider-Temp. Comp.
R79	56KΩ	1		BTS-56K	Voltage Divider-See Note 6
R80	270KΩ 5%	1		BTA-270K-5%	Voltage Divider
R81	100KΩ	1		BTA-100K	Horiz. Osc. Grid
R82	10KΩ	½		BTS-10K	Horiz. Osc. Transformer Shunt
R83	22KΩ	1		BTS-22K	Horiz. Osc. Transformer Shunt-See Note 1
R84	100KΩ	1		BTA-100K	Horiz. Osc. Plate-See Note 7
R85	10KΩ	1		BTS-10K	Filter
R86	150KΩ	1		BTS-150K	Horiz. AFC Filter Network
R87	270Ω	1			Horiz. Peaking
R88	47Ω	1			Parasitic Supp.
R89	1 Meg.	1		BTS-1 Meg.	Horiz. Output Grid
R90	120Ω	2		BW-2-120	Horiz. Output Cathode-See Note 8
R91	4700Ω	2		BT-2-4700	Horiz. Output Screen-See Note 9
R92	56KΩ	1		BTS-56K	Decoupling
R93	560KΩ	1		BTS-560K	Feedback
R94	4.7Ω	1			HV Rect. Filament-Wire Wound
R95	560KΩ	1			HV Filter
R96A	650Ω	10			Filter-Wire Wound
B	1350Ω	15			Filter-Wire Wound
R97	10KΩ	2		BT-2-10K	Bleeder

Note 1. Not used in all models.
Note 2. Some models use 15KΩ resistor in this application.
Note 3. Some models use two resistors in parallel to obtain required resistance and wattage.
Note 4. Some models use 270KΩ resistor in this application.
Note 5. Some models use 3.3 Meg. resistor in this application.
Note 6. Some models use 100KΩ resistor in this application.
Note 7. Some models use 120KΩ resistor in this application.
Note 8. Some models use 100Ω resistor in this application.
Note 9. Some models use 10KΩ, 4 watt resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	WILCOX-GAY PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ② 2.4A	790VCT .280ADC	5VAC ③ 3A	6.3VAC ③ 6A SEC. 4 6.3VAC ③ 1.2A SEC. 5 6.3VAC ③ 6A		P-8159 ③ P-8134 ① ③	P-3067 P-2944 ①	

① Mount under chassis and use for SEC. #4.
② Drill new mounting holes.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	WILCOX-GAY PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	195Ω	1000Ω		A-8111 ②	A-3000 ②	TBO-1 ②	Vert. Block Osc. Trans.
T3	315Ω Tap ③ 100Ω	7.6Ω Tap ③ .6Ω SEC. 2		A-8128	HVO-3	TFB-4	Hor. Output Trans.
T4	500Ω	7Ω		A-8116 ③	A-3035 ③	TSO-4 ②	Vert. Output Trans.
T5A	11Ω			DY-1	MD-12		Hor. Deflection Coil
B	64Ω						Vert. Deflection Coil
T6	470Ω						Focus Coil

② Drill one new mounting hole.
③ Drill new mounting holes

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		Wilcox-Gay PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	7KΩ	3.9Ω	530Ω	.7Ω		A-8114	A-2931	RO-13	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	WILCOX-GAY PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.9Ω		ST-102 ④ MOD. P12-S	12A4A	④ Replace output transformer to match 6-8Ω voice coil.
	CONE DIA.	V. C. DIA.				
SP2	11 3/4"	1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	Wilcox-Gay PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.280A	62Ω	2.2 Henry		C-2326	C-2996	TR-3300②	② Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	WILCOX-GAY PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω				
L3	RF, Mixer Grid & Osc.					
L4	Conv. Trans.	.1Ω	.1Ω			
L5	Fil. Choke	0Ω				
L6	Fil. Choke	0Ω				
L7	1st Video IF	1.2Ω				
L8	2nd Video IF	.2Ω				
L9	3rd Video IF	.2Ω				
L10	4th Video IF	.1Ω				
L11	Peaking	4.9Ω			19-1921 †	Wound on 22KΩ resistor, 120 microhenries
L12	Peaking	2.2Ω				36 microhenries
L13	4.5MC Trap	2.1Ω				
L14	Peaking	4.9Ω			19-1921 †	Wound on 22KΩ resistor, 120 microhenries
L15	Peaking	4.1Ω			19-1920	93 microhenries
L16	Peaking	4.9Ω			19-1921	Wound on 22KΩ resistor, 120 microhenries
L17	1st Sound IF	.1Ω	.1Ω			
L18	2nd Sound IF	.1Ω	.1Ω			
L19	Disc. Trans.	.1Ω	.1Ω			
L20	Horiz. Osc.	135Ω				Tap at 100Ω
L21	Horiz. Lin.	37Ω				
L22	Horiz. Size	.5Ω				
L23	FM Ant.	0Ω				
L24	FM RF	0Ω				
L25	FM Osc.	0Ω				
L26	FM IF	.1Ω	0Ω			
L27	Fil. Choke	0Ω				

† Add 22KΩ Resistor in parallel.

DIAL LIGHTS

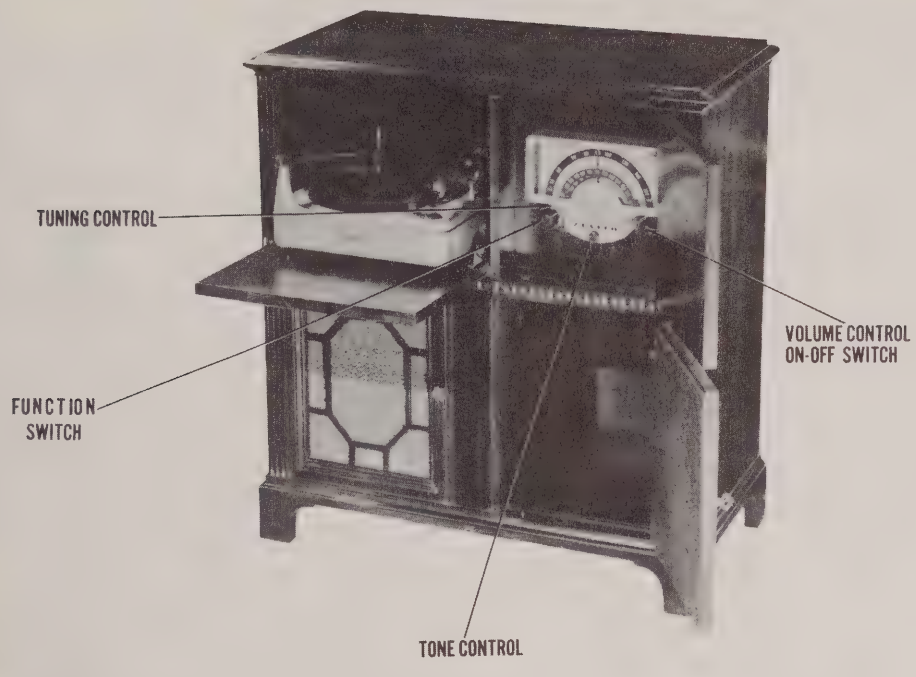
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					WILCOX-GAY PART No.		
M1	Bayonet	6-8	.25	Blue			Type #44
M2	Bayonet	6-8	.25	Blue			Type #44

MISCELLANEOUS

ITEM No.	PART NAME	WILCOX-GAY PART No.	NOTES
M3	RF Tuner		
M4	Fuse		5A 250V Type MTH
M5	Fuse		3/8A 250 V Type AGC
M6	Ion Trap		
M7	Switch		Function Phono-FM-TV
M8	Trimmer		Horiz. Drive 40-370 micromicrofarads
M9	Trimmer		Horiz. Freq. 40-370 micromicrofarads
M10	Trimmer		Horiz. Range 10-160 micromicrofarads
M11	Tuning Cap.		FM Tuning

ZENITH MODELS G881, G882, G883, G884, G885 (Ch. 8G20)

ZENITH MODELS G881, G882, G883, G884, G885 (Ch. 8G20)

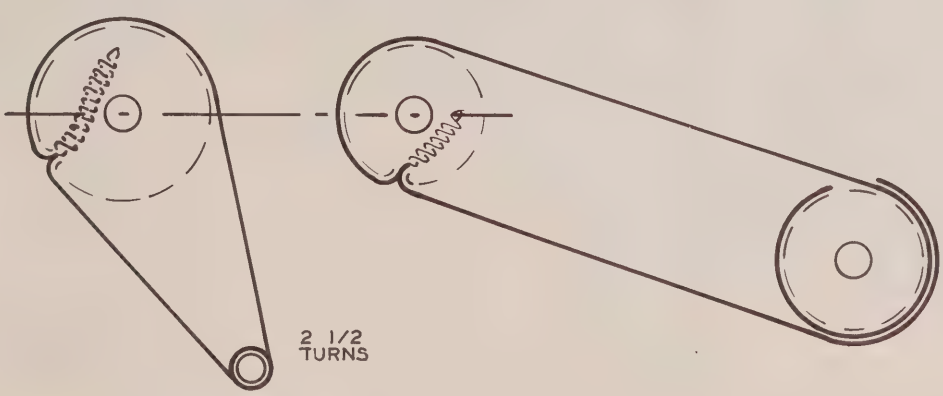


ZENITH MODEL G882

TRADE NAME	Zenith, Models G881, G882, G883, G884, G885 (Ch. 8G20)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver		
TUBES (EIGHT)	Types 12BA6 RF Amp., 12AT7 Converter, 12BA6 1st IF Amp.-Phono Amp., 12BA6 2nd IF Amp., 12AU6 Limiter, 19T8 DET-AVC-AF, 25L6GT Power Output, 25Z6GT Rectifier		
POWER SUPPLY	110-120 Volts AC	RATING	.68 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	540-1620KC	FREQ. MOD.	88-108MC

RECORD CHANGER----S-14025 USED IN MODELS G881, G882, G883, G884. S-14026 USED IN MODEL G885

TUNING GANG FULLY CLOSED



DIAL CORD DRIVE

PROPERTY OF
L. F. BLANKENSHIP
3324 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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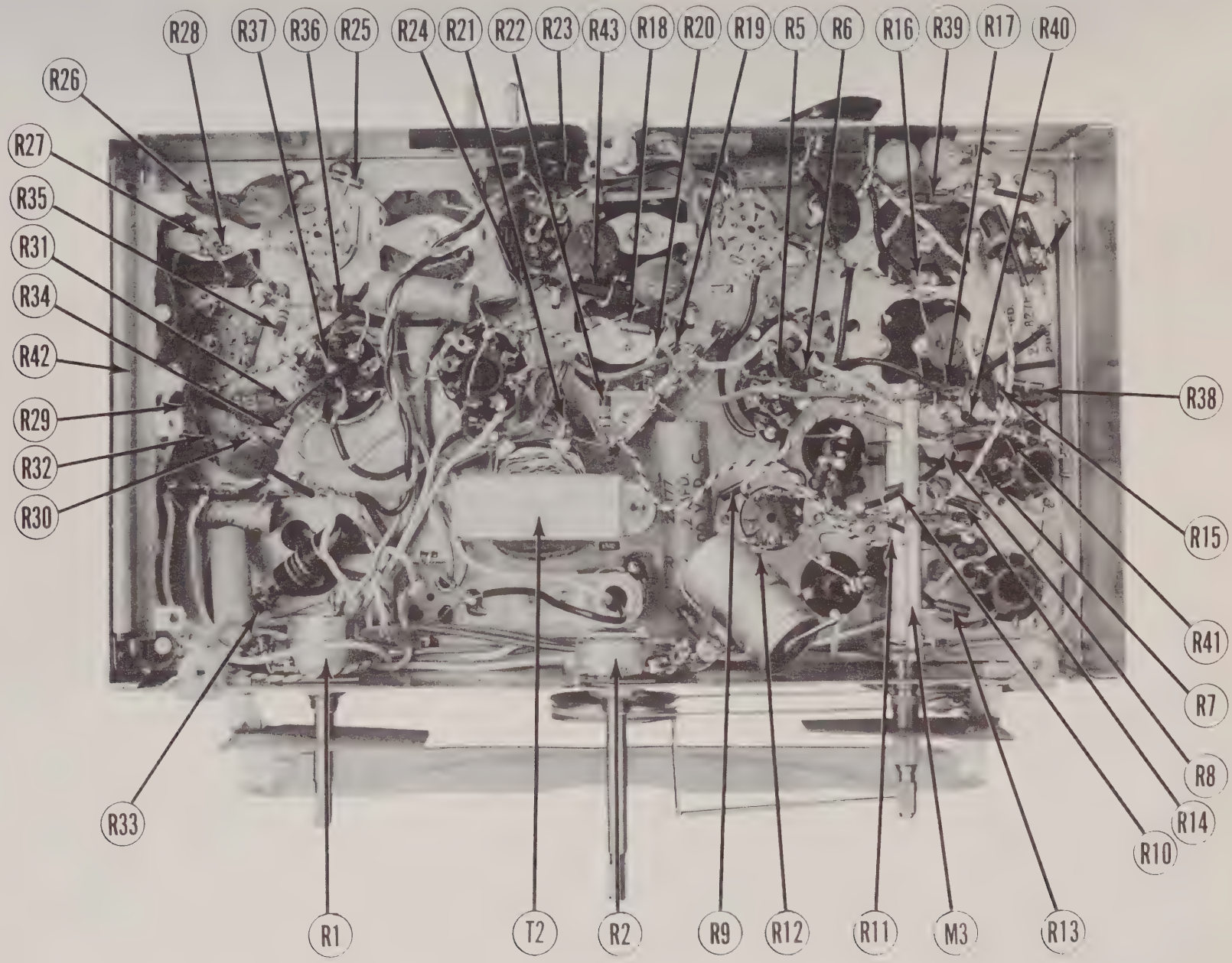
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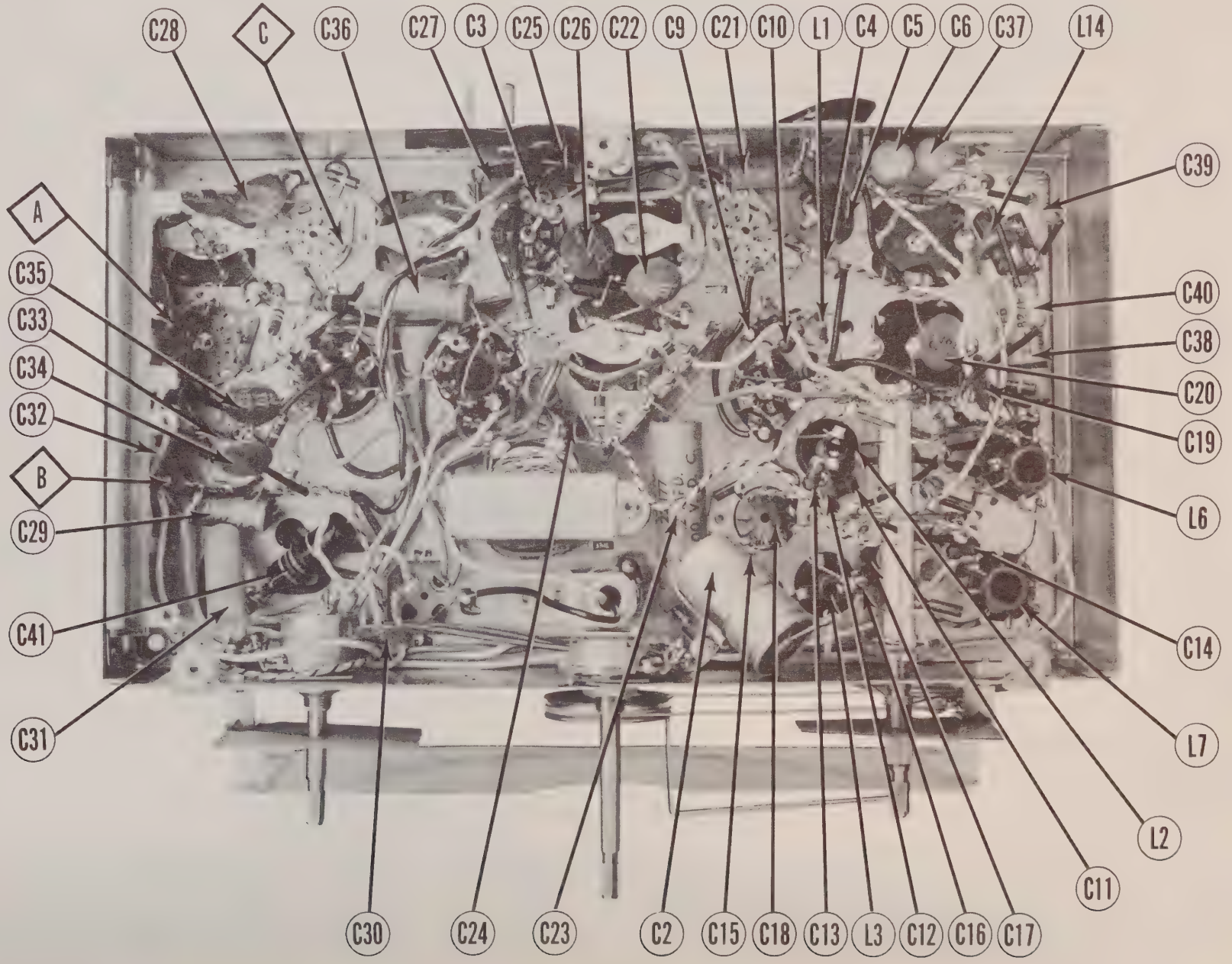
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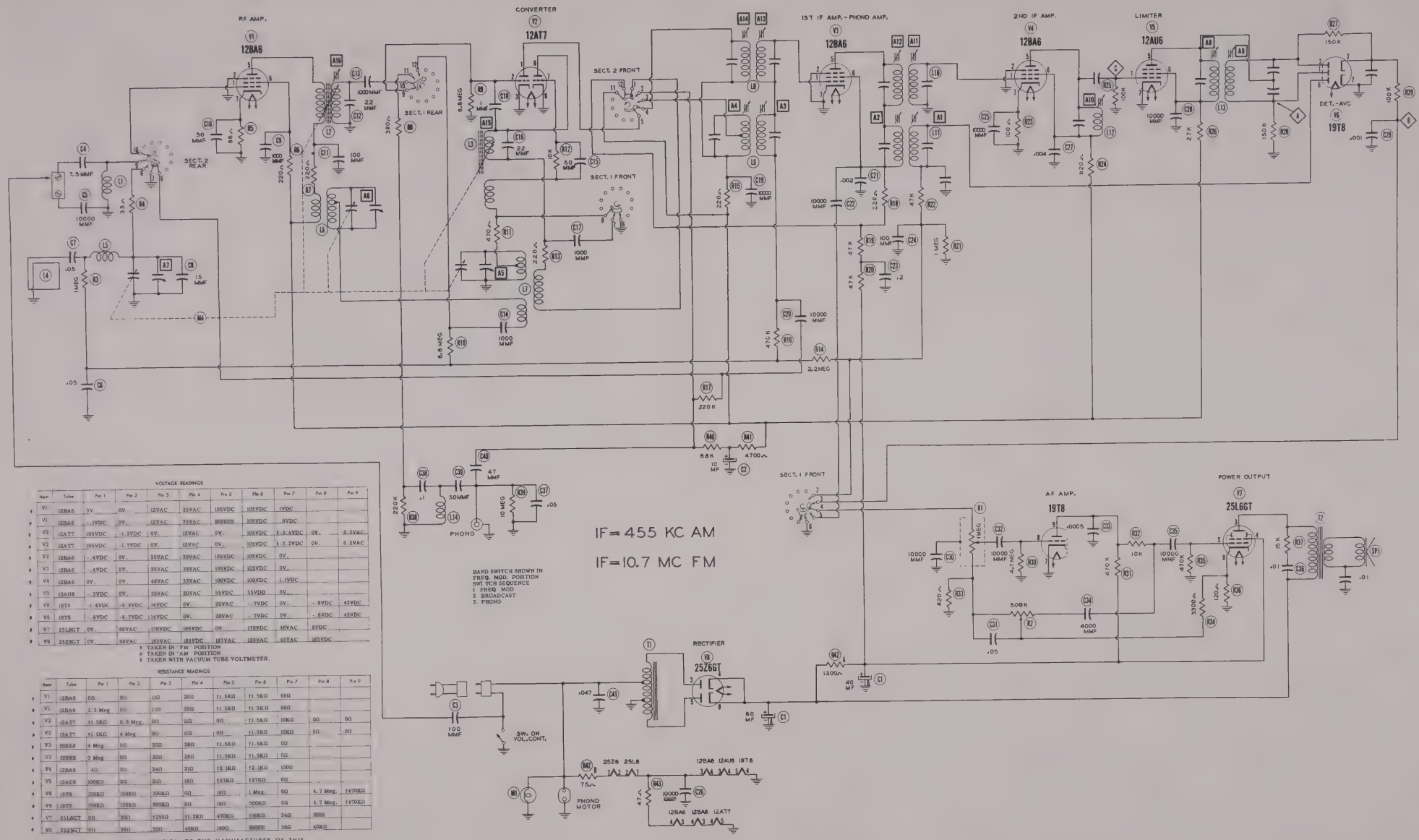
C35
C33
C34
C32
B
C29
C41
C31
C40
C38
C20
C19
L6
C14
L7
L2
C11
C30
C24
C23
C2
C15
C18
C13
L3
C12
C16
C17



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
*	V1	12BA6	0V	0V	12VAC	25VAC	105VDC	105VDC	1VDC	
#	V1	12BA6	-.1VDC	0V.	12VAC	25VAC	[illegible]	105VDC	.8VDC	
†	V2	12AT7	105VDC	-1.3VDC	0V.	12VAC	0V.	105VDC	1-3.4VDC	0V.	6.2VAC
#	V2	12AT7	105VDC	-1.7VDC	0V.	12VAC	0V.	105VDC	1-3.2VDC	0V.	6.2VAC
*	V3	12BA6	-.4VDC	0V.	25VAC	39VAC	105VDC	105VDC	0V.		
#	V3	12BA6	-.4VDC	0V.	25VAC	39VAC	105VDC	105VDC	0V.		
*	V4	12BA6	0V.	0V.	48VAC	33VAC	100VDC	109VDC	1.1VDC		
*	V5	12AU6	-.3VDC	0V.	33VAC	20VAC	55VDC	55VDC	0V.		
*	V6	19T8	-1.4VDC	-0.9VDC	14VDC	0V.	20VAC	-.7VDC	0V.	-.8VDC	42VDC
#	V6	19T8	-.8VDC	-0.7VDC	114VDC	0V.	20VAC	-.7VDC	0V.	-.8VDC	42VDC
#	V7	25L6GT	0V.	88VAC	170VDC	105VDC	0V	170VDC	48VAC	8VDC	
#	V8	25Z6GT	0V.	88VAC	185VAC	183VDC	187VAC	120VAC	93VAC	185VDC	

* TAKEN IN "FM" POSITION
# TAKEN IN "AM" POSITION
‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
*	V1	12BA6	0Ω	0Ω	1Ω	20Ω	†1.5KΩ	†1.5KΩ	68Ω		
#	V1	12BA6	3.5 Meg	0Ω	1Ω	20Ω	†1.5KΩ	†1.5KΩ	68Ω		
*	V2	12AT7	†1.5KΩ	6.8 Meg.	0Ω	1Ω	0Ω	†1.5KΩ	10KΩ	0Ω	0Ω
#	V2	12AT7	†1.5KΩ	4 Meg	0Ω	1Ω	0Ω	†1.5KΩ	10KΩ	0Ω	0Ω
*	V3	[illegible]	4 Meg	0Ω	20Ω	26Ω	†1.5KΩ	†1.5KΩ	0Ω		
#	V3	[illegible]	3 Meg	0Ω	20Ω	26Ω	†1.5KΩ	†1.5KΩ	1 Ω		
*	V4	12BA6	4Ω	0Ω	24Ω	21Ω	†2.1KΩ	†2.1KΩ	100Ω		
*	V5	12AU6	100KΩ	0Ω	21Ω	16Ω	†27KΩ	†27KΩ	0Ω		
*	V6	19T8	150KΩ	150KΩ	300KΩ	0Ω	16Ω	1 Meg.	0Ω	4.7 Meg.	†470KΩ
#	V6	19T8	150KΩ	150KΩ	300KΩ	0Ω	16Ω	500KΩ	0Ω	4.7 Meg.	†470KΩ
#	V7	25L6GT	0Ω	30Ω	†255Ω	†1.3KΩ	470KΩ	116KΩ	24Ω	[illegible]	
#	V8	25Z5GT	0Ω	30Ω	50Ω	40KΩ	100Ω	[illegible]	36Ω	40KΩ	

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 2 (Grid) of 12AT7 (V2). Low side to chassis.	455KC (400 ∿ Mod.)	AM (center pos.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1600KC	"	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	"	1400KC	"	A6, A7	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (Grid) of 12AU6 (V5). Low side to chassis.	10.7MC (Unmod.)	FM (CW)	Tuning gang fully open	DC Probe thru 1 Meg. to point (A). Common to chassis.	A8	Adjust for maximum deflection.
5.	.05MFD	"	"	"	"	DC Probe to Point (B). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	.05MFD	High side to pin 2 (Grid) of 12AT7 (V2). Low side to chassis.	"	"	"	DC Probe thru 1 Meg. to Point (C). Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.05MFD	High side to pin 2 (Grid) of 12BA6 (V3). Low side to chassis.	10.7MC (450KC Sweep)	FM (CW)	Tuning gang fully open	Vert. Amp. thru 1 Meg. to Point (C). Low side to chassis.	A10, A11, A12	Adjust for maximum amplitude and symmetry as per figure 1.
5.	.05MFD	High side to pin 2 (Grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A13, A14	"
6.	.05MFD	"	"	"	"	Vert. Amp. to Point (B). Low side to chassis.	A8, A9	Adjust A8 so 10.7MC occurs at center of crossover lines as per Fig 2. Adjust A9 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω carbon res.	High side to "FM" antenna terminal. Low side to chassis. (Disconnect line antenna)	109MC (Unmod.)	FM	Tuning gang fully open	DC Probe thru 1 Meg. to Point (C). Low side to chassis.	A15, A16	Adjust for maximum deflection.

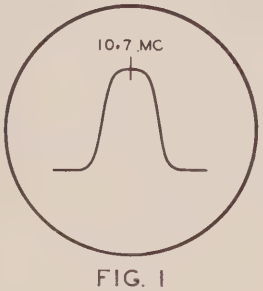

FIG. 1

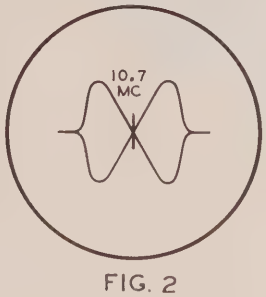

FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	12BA6	12BA6	7BK	
V2	Converter	12AT7	12AT7	9A	
V3	1st IF Amp.-Phono Amp.	12BA6	12BA6	7BK	
V4	2nd IF Amp.	12BA6	12BA6	7BK	
V5	Limiter	12AU6	12AU6	7BK	
V6	DET-AVC-AF	19T8	19T8	9E	
V7	Power Output	25L6GT	25L6GT	7AC	
V8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	250	22-2105	AF161612F			ELS-12	▲ Filter
B	40	250						▲ Filter
							UT-122	Filter
C2	10	250	22-2154	PRS350/12				
C3	100		22-5	GP100M	D6-101	GP1K-100	1FM-31	Line Ant. Coupling
C4	7.5		22-1852	GP10K	D6-100	GP1K-10	MS-41	Ant. Coupling
C5	10000		22-3	BPD-10	D6-103	811-01	36C1	Ant. Isolation
C6	.05	200	22-829	P288-05			TM-15	AVC Filter
C7	.05	200	22-829	P288-05			TM-15	Ant. Coupling *
C8	15			CN15JN150		N150K-15		Fixed Trimmer *
C9	1000		22-1676	GP1000M	D6-102	GP2L-001	1FM-21	RF Screen Bypass
C10	30		22-1705	GP30M	D6-330	GP1K-30	MS-43	RF Cath. Bypass
C11	100		22-5	GP100M	D6-101	GP1K-100	1FM-31	RF Plate Decoupling
C12	22		22-1506	CN22JN080		N080-331-22		Fixed Trimmer
C13	1000		22-1676	GP1000M	D6-102	GP2L-001	1FM-21	RF Coupling
C14	1000		22-1676	GP1000M	D6-102	GP2L-001	1FM-21	RF Coupling
C15	50		22-1367	GP50M	D6-500	GP1K-50	1FM-45	Osc. Grid Cap.
C16	22		22-1506	CN22JN080		N080-331-22		Fixed Trimmer
C17	1000		22-1676	GP1000M	D6-102	GP2L-001	1FM-21	Osc. Plate Decoupling
C18	1		22-1762		D2-1			Osc. Coupling
C19	10000		22-3	BPD-10	D6-103	811-01	36C1	Conv. Plate Decoupling
C20	10000		22-3	BPD-10	D6-103	811-01	36C1	AVC Filter
C21	.002	600	22-1220	P688-002	D6-202	GP2M-002	TM-22	1st IF Screen Decoupling
C22	10000		22-3	BPD-10	D6-103	811-01	36C1	Audio Coupling
C23	.2	400	22-17	P488-22			TC-2	Decoupling
C24	100		22-5	GP100M	D6-101	GP1K-100	1FM-31	Diode RF Filter
C25	10000		22-3	BPD-10	D6-103	811-01	36C1	2nd IF Cath. Bypass
C26	10000		22-3	BPD-10	D6-103	811-01	36C1	2nd IF Fil. Bypass
C27	.004	600	22-448	P688-004	D6-472	GP2M-004	TM-24	2nd IF Decoupling
C28	10000		22-3	BPD-10	D6-103	811-01	36C1	Limiter Decoupling
C29	.001	200	22-1717	P688-001	D6-102	GP2L-001	TM-21	RF Bypass
C30	10000		22-3	BPD-10	D6-103	811-01	36C1	Vol. Control Isolation
C31	.05	200	22-829	P288-05			TM-15	Tone Compensation
C32	10000		22-3	BPD-10	D6-103	811-01	36C1	Audio Coupling
C33	.0005	600	22-854	1468-0005	D6-501	GP2K-500	TC-35	AF Amp. Plate Bypass
C34	4000		22-4	GP4000M		GP2M-004	TM-24	Tone Compensation
C35	10000		22-3	BPD-10	D6-103	811-01	36C1	Audio Coupling
C36	.01	600	22-669	P688-01	D6-103	811-01	TM-11	Tone Compensation
C37	.05	200	22-829	P288-05			TM-15	Phono Isolation
C38	.1	200	22-827	P288-1			TM-1	Phono Osc. Grid Cap.
C39	50		22-1367	GP50M	D6-500	GP1K-50	1FM-45	Osc. Feedback
C40	47		22-1876	GP47K	D6-470	GP1K-47	1FM-45	Osc. Feedback
C41	.047	400	22-1775	P488-047			TM-15	Line Filter

* Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	63-2062	Q11-137	AM-61-S	AN-59	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	K-155	Attach to R1A per instructions
R2A	500KΩ	½	63-2063	Q11-133	AM-58-S	AN-59	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R2A per instructions

CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
R3	1 Meg.	1/2	63-1912	BTS-1 Meg.	Ant. Isolation-See Note 1
R4	33Ω	1/2			Parasitic Supp.-See Note 2
R5	68Ω	1/2	63-1736		RF Cathode
R6	220Ω	1/2	63-1758		RF Screen
R7	220Ω	1/2	63-1758		RF Plate Decoupling
R8	390Ω	1/2	63-1768		Parasitic Supp.
R9	6.8 Meg.	1/2	63-1947	BTS-6.8 Meg.	Conv. Grid
R10	6.8 Meg.	1/2	63-1947	BTS-6.8 Meg.	AVC Network
R11	470Ω	1/2	63-1772		Parasitic Supp.
R12	10KΩ	1/2	63-1827	BTS-10K	Osc. Grid
R13	220Ω	1/2	63-1758		Osc. Plate Decoupling
R14	2.2 Meg.	1/2	63-1926	BTS-2.2 Meg.	AVC Network
R15	220Ω	1/2	63-1758		Conv. Plate Decoupling
R16	470KΩ	1/2	63-1898	BTS-470K	AVC Network
R17	220KΩ	1/2	63-1884	BTS-220K	Voltage Divider
R18	220Ω	1/2	63-1758		1st IF Decoupling
R19	47KΩ	1/2	63-1856	BTS-47K	Decoupling
R20	47KΩ	1/2	63-1856	BTS-47K	Decoupling
R21	1 Meg.	1/2	63-1912	BTS-1 Meg.	Diode Load
R22	47KΩ	1/2	63-1856	BTS-47K	Diode Filter
R23	100Ω	1/2	63-1744		2nd FM IF Cathode
R24	820Ω	1/2	63-2091	BW-1/2-820	2nd FM IF Decoupling-Wire Wound
R25	100KΩ	1/2	63-1870	BTS-100K	Limiter Grid
R26	27KΩ	1/2	63-1845	BTS-27K	Limiter Decoupling
R27	150KΩ	1/2	63-1876	BTS-150K	Disc. Diode Load
R28	150KΩ	1/2	63-1876	BTS-150K	Disc. Diode Load
R29	100KΩ	1/2	63-1869	BTS-100K	De-emphasis
R30	4.7 Meg.	1/2	63-1940	BTS-4.7 Meg.	AF Amp. Grid
R31	470KΩ	1/2	63-1898	BTS-470K	AF Amp. Plate
R32	10KΩ	1/2	63-1828	BTS-10K	Tone Compensation
R33	820Ω	1/2	63-1782	BTS-820	Tone Compensation
R34	3300Ω	1/2	63-1806	BTS-3300	Tone Compensation
R35	470KΩ	1/8	63-1898	BTS-470K	Output Grid
R36	120Ω	1	63-1981	BW-1-120	Output Cathode
R37	15KΩ	1/2	63-1834	BTS-15K	Tone Compensation
R38	220KΩ	1/2	63-1884	BTS-220K	Phono Osc. Grid
R39	10 Meg.	1/2	63-1954	BTS-10 Meg.	Phono Input Shunt
R40	68KΩ	1/2	63-1863	BTS-68K	Phono Osc. Plate
R41	4700Ω	1/2	63-1813	BTS-4700	Filter
R42A	1300Ω	5	63-2068		Filter-Wire Wound
B	75Ω	5			Filament Dropping-Wire Wound
R43	47Ω	1	63-2093	BW-1-47	Filament Dropping-Wire Wound

Note 1. Not used in all models.
Note 2. Some models use 39Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⑥ .33A	340VCT .110ADC			95-1188			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	3000Ω	3.6Ω	255Ω	.6Ω	95-1189	A-3876 ①	A-3018	RO-2 ①	① Drill one new mounting hole.

TRANSFORMER (FILAMENT)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T3					95-1228 ②			

② Used in model G881 only.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3.6Ω	49-624 ③	ST-102 ⑤ MOD. P12-S	12A4A	③ Used in models G881, G882, G883, G884
B	PM		49-678 ④		10A4A	④ Used in model G885
	CONE DIA.	V. C. DIA.				⑤ Replace output transformer to match 6-8Ω voice coil.
SP2A	11 1/4"	1"	208-624			
B	9 3/4"	1"	208-678			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.
L1	FM Ant.	0Ω		S-16408	
L2	FM RF	0Ω	0Ω	S-15743	
L3	FM Osc.	0Ω	0Ω	S-15691	
L4	Loop Ant.	1Ω			
L5	AM Ant. Chk.	3.2Ω			
L6	AM RF	3.1Ω	12Ω	S-16344	
L7	AM Osc.	1.6Ω	9Ω	S-16345	
L8	1st FM IF	.5Ω	.5Ω	95-1201	
L9	1st AM IF	5.5Ω	19Ω	95-1200	
L10	2nd FM IF	.4Ω	.4Ω	95-1150	
L11	2nd AM IF	20.5Ω	20.5Ω	95-1102	
L12	3rd FM IF	.2Ω		95-1152	
L13	Disc. Trans.	.3Ω	.3Ω	95-1153	
L14	Phono Osc.	2Ω		S-12603	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ZENITH PART No.		
M1	Bayonet	115			100-97		115-120 Volt, 10 Watt

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	ZENITH PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2A	S-15780					Models G881, G882, G883, G884
B	S-15222					Model G885

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Switch	85-467	AM-FM-Phono
M4	3 Gang Var. Cap.	22-2104	(21-488MMF, 40-222MMF, 12-164MMF)
	Dial Scale	26-429	
	Knob	46-522	Dummy
	Knob	46-538	Tuning
	Knob	46-718	Band Switch and Volume
	Knob	46-831	Tone

PHOTOFACT* Folder

*TRADE MARK

ZENITH MODELS G2322, G2340, R, G2346R, G2353E, G2441, R, G2442E, R, G2448R, G2957, R, G2958R, G3059R, G3062

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MODEL G3059R

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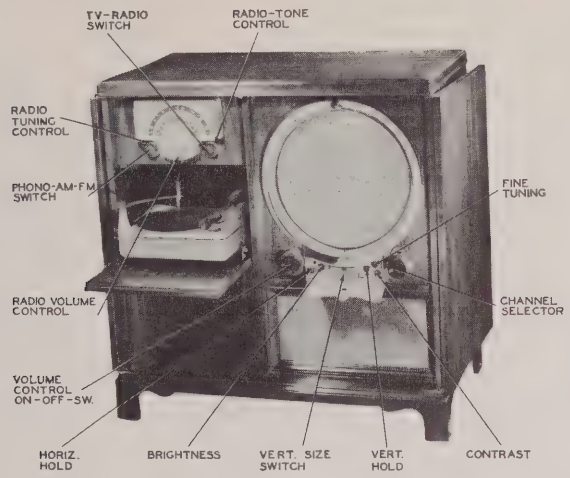

ZENITH MODEL G3059R

TRADE NAME	Zenith	MODEL	TV CHASSIS	RADIO CHASSIS
		G2322, G2340, G2340R G2346R, G2353E	23G22	None
		G2441	24G24	None
		G2441R, G2442E, G2442R, G2448R	24G22/24	None
		G2957, G2957R, G2958R	23G23	6G20
		G3059R, G3062	24G23/25	6G20
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois			
TYPE SET	TV-AM-FM-Phono Combination Receiver (Some Models "TV" Only)			
TUBES	Twenty Three or Twenty Four ("TV" Only Receivers) Twenty Nine or Thirty (Combination Receivers)			
POWER SUPPLY	110-120 Volts AC-60 Cycles			
RATINGS	2.1 Amp. at 117 Volts AC (TV Operation) 1.2 Amp. at 117 Volts AC (Radio Operation)			
TUNING RANGES	TV--Channels 2 thru 13, FM--88-108MC, AM--540-1620KC			

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ZENITH MODELS G2322, G2340,R, G2346R, G2353E, G2441,R, G2442E,R, G2448R, G2957,R, G2958R, G3059R, G3062

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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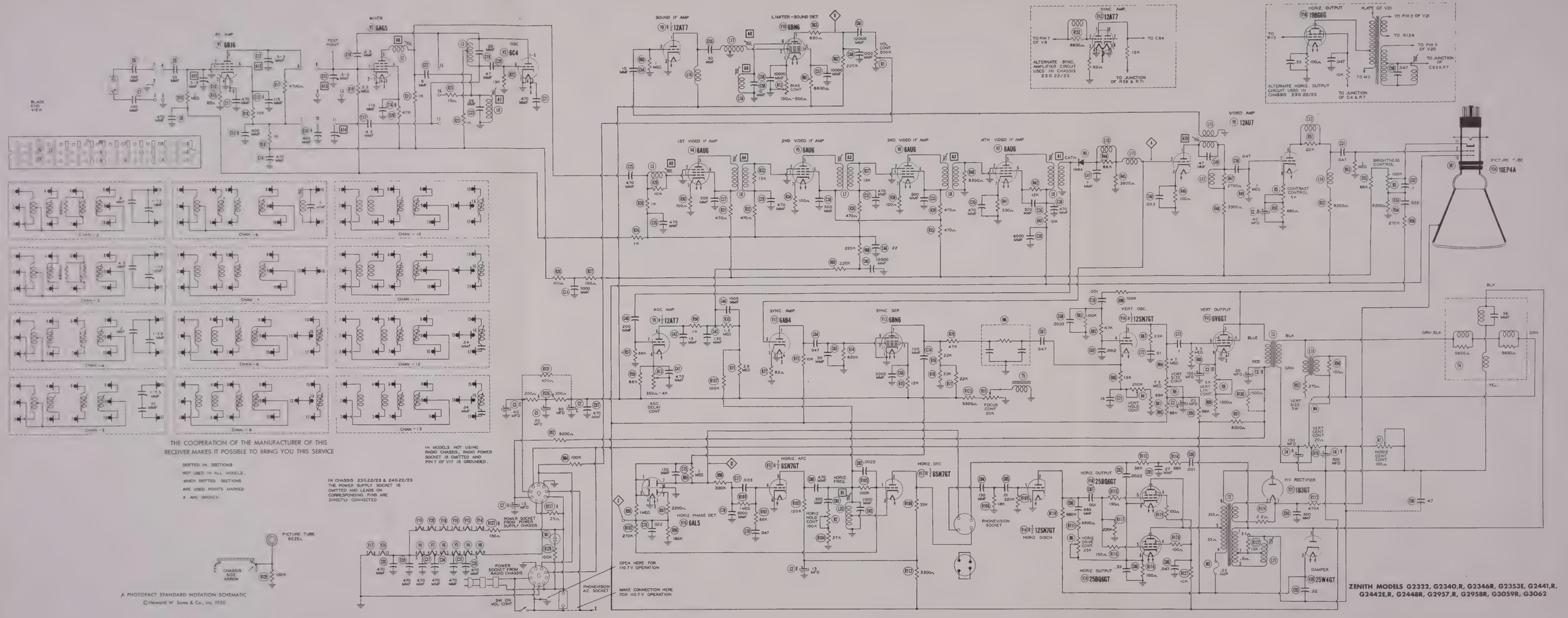
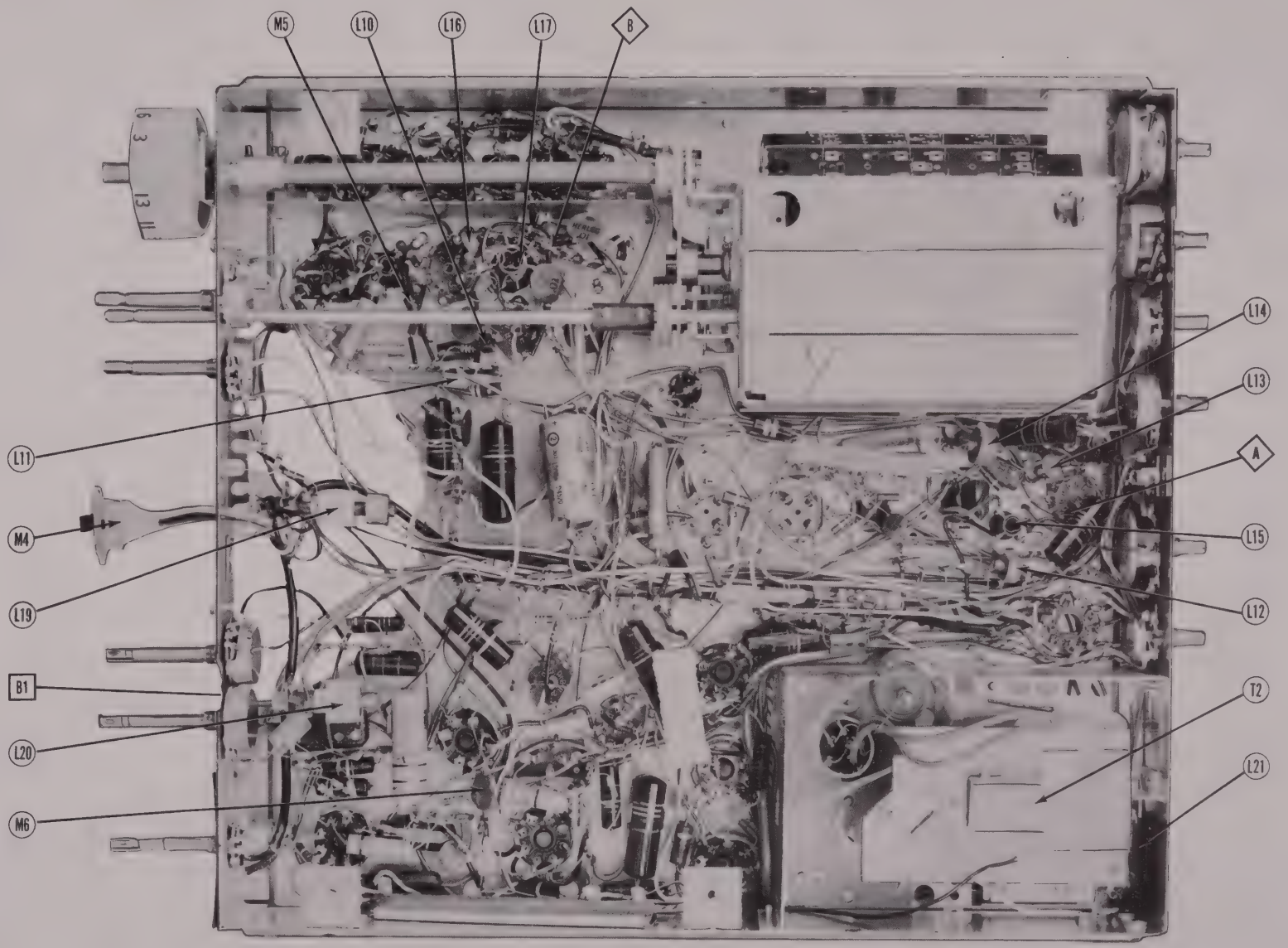
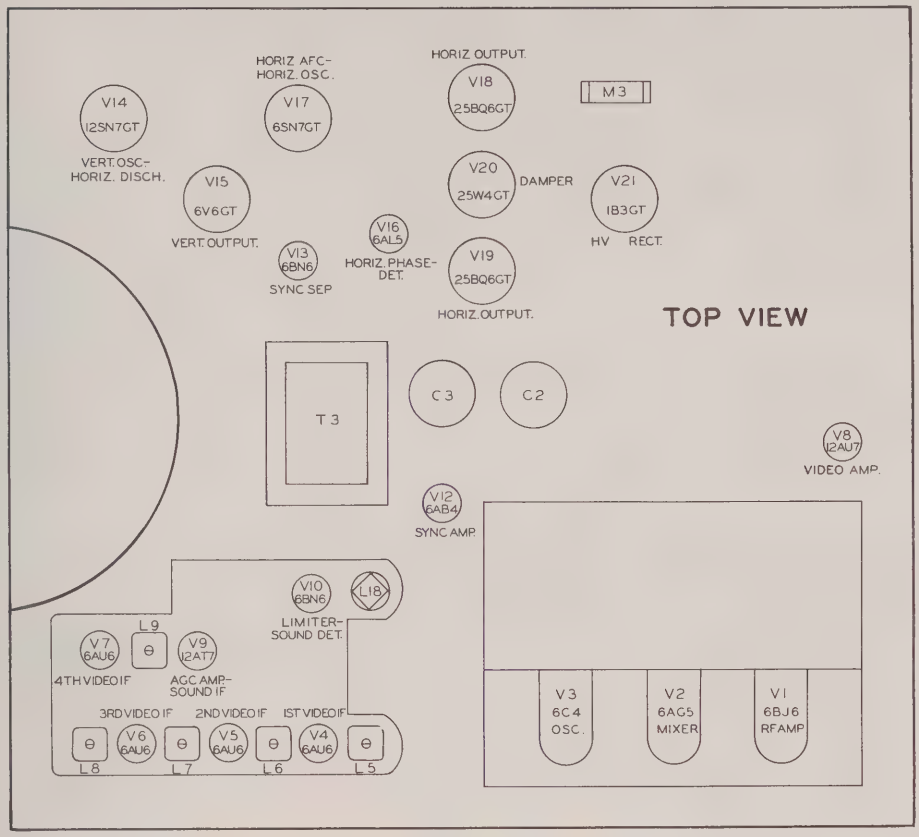
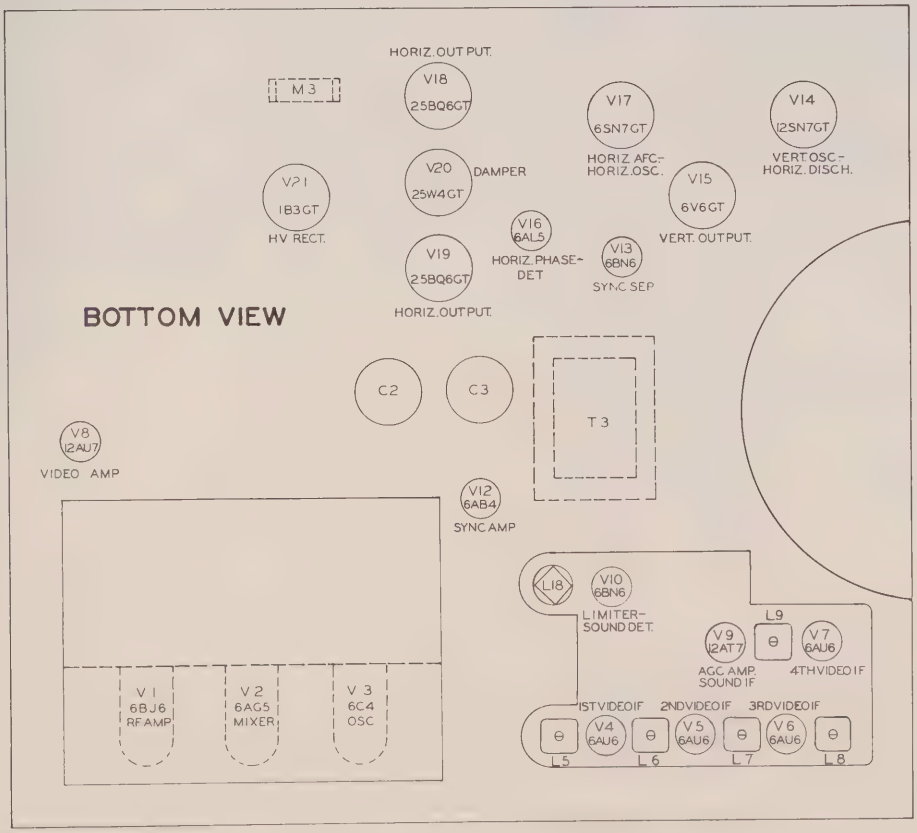

ZENITH MODELS G2322, G2340,R, G2346R, G2353E, G2441,R, G2442E,R, G2448R, G2957,R, G2958R, G3059R, G3062
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DOTTED IN SECTIONS NOT USED IN ALL MODELS. WHEN DOTTED SECTIONS ARE USED POINTS MARKED X ARE SPOKEN
IN MODELS NOT USING RADIO CHASSIS, RADIO POWER SOCKET IS OMITTED AND PIN 7 OF V17 IS GROUNDED.
IN CHASSIS 23G22/23 & 24G22/23 THE POWER SUPPLY SOCKET IS OMITTED AND LEADS ON CORRESPONDING PINS ARE DIRECTLY CONNECTED
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1950
ZENITH MODELS G2322, G2340,R, G2346R, G2353E, G2441,R, G2442E,R, G2448R, G2957,R, G2958R, G3059R, G3062

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The end of the high voltage lead should be securely taped and dressed away from the chassis. Do not remove the horizontal oscillator tube.
Do not connect the ground lead of any test equipment to the wrap around chassis, connect all leads to the top plate.
Turn the function selector switch to TV (counter-clockwise).

VIDEO IF ALIGNMENT

Turn the channel selector switch to channel 3.
Remove the local oscillator tube (V3) to prevent erroneous indications.
Connect the negative lead of a 3 volt battery to the junction of R68 and C46, connect the positive lead to top chassis.
Attenuate the sweep generator to maintain 3 volt peak to peak indication on the oscilloscope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to pin 5 (plate) of 6AU6 (V6). Low side to top chassis.	44MC (10MC SWP)	43.5MC 45MC	3	Vert. Amp. to Point (A). Low side to chassis.	A1	Adjust for symmetrical response curve similar to figure 1.
2.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V5). Low side to top chassis.	"	"	"	"	A2, A3	Adjust A2 at 45MC and A3 at 43.5MC for a symmetrical response curve similar to figure 2. When A2 and A3 are properly adjusted, rocking A5 will cause the response curve to tilt as shown by the dotted lines in figure 3.
3.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to top chassis.	"	"	"	"	A4, A5, A6	Adjust A4 at 45MC and A5 and A6 at 43.5MC for a symmetrical response similar to figure 4. If necessary slightly retouch A2 and A3 for proper response.
4.	Direct	"	"	47.25MC (maximum output).	"	"	A7	Adjust for MINIMUM marker indication at the 47.25MC point on response curve.

SOUND IF ALIGNMENT

The limiter-detector input coil (A8) must be adjusted with the signal input below the limiting level of the tube. The limiting level can be found by decreasing the output of the signal generator until a sharp drop in response amplitude is noted, below this point the tube is not limiting. If necessary attenuate the signal generator while adjusting A8 to keep the input signal below the limiting level.

The quadrature coil (A9) and the bias control (R12) may be adjusted above the limiting level if desired. It should be noted that the negative leg of the "S" curve is approximately twice as long as the positive leg, and that adjustment of A8 causes the positive leg to broaden.

Proper adjustment of A8 is indicated by maximum amplitude of the "S" curve with the positive leg at its narrowest point.

The quadrature coil (A9) should not be adjusted unless it is definitely known to be out of alignment. The proper point for the 4.5MC marker placement is found by reducing the oscilloscope horizontal gain until a single vertical line is observed. The break in the vertical line is the point where the marker should be set by adjustment of A9.

If not oscilloscope is available the sound IF system may be aligned using a TV station as follows:

a) Connect a variable attenuator pad between the antenna and the set and adjust it until the signal falls below the detector limiting level, as indicated by a background hiss similar to superregeneration.
b) Adjust A8, A9 and R12 for maximum audio with minimum buzz.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 2 (Grid) of 12AU7 (V8). Low side to chassis.	4.5MC (450KC Sweep)	4.5MC	Any	Vert. Amp. to Point (B). Low side to chassis.	A8, A9, R12	READ CAREFULLY INSTRUCTIONS ABOVE. Adjust for response curve similar to Fig. 5.

OSCILLATOR ALIGNMENT

Connect the bias battery as outlined under video IF alignment.
Replace the local oscillator tube (V3).
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.
The overall oscillator circuit adjustment (A10) should not be adjusted unless the oscillator can not be adjusted to the proper frequency with the strip oscillator adjustment for each channel except 7. Channels 7 has no strip oscillator adjustment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	177MC (10MC SWP)	175.25MC 179.75MC	7	Vert. Amp. to Point (A). Low side to chassis.	A10	Adjust to place sound marker as shown in figure 6. The video marker should be at 50%.
7.	"	"	183MC (10MC SWP)	181.25MC 185.75MC	8	"		Check to see that the sound marker can be properly placed with the strip oscillator adjustment.
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			207MC (10MC SWP)	205.25MC 209.75MC	12			
			213MC (10MC SWP)	211.25MC 215.75MC	13			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

RF ALIGNMENT

The RF and mixer adjustments are pre-set at the factory and are very stable. Alignment of these circuits should not be attempted unless they are definitely known to be out of alignment.
Connect the bias battery as outlined under video IF alignment.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
If the response curve seems to be tilted approximately the same amount on all channels, check the video IF alignment before attempting RF alignment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	69MC (10MC SWP)	67.25MC 71.75MC	4	Vert. Amp. to Point (A). Low side to chassis.	A11, A12, A13	Adjust for maximum amplitude and symmetry as per figure 7.
9.	"	"	177MC (10MC SWP)	175.25MC 179.75MC	7	"	A14	Adjust for maximum amplitude with proper bandpass as per figure 7. The converter plate coil (A6) will have to be adjusted after the cover is removed, and again retuned after the cover is replaced.

TV ALIGNMENT INSTRUCTIONS (CONT.)

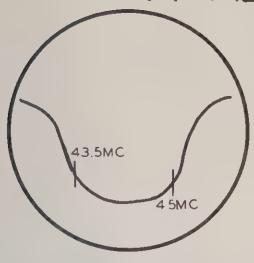


FIG.1

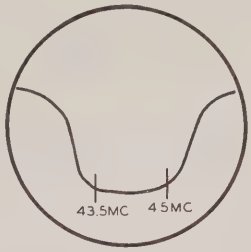


FIG.2

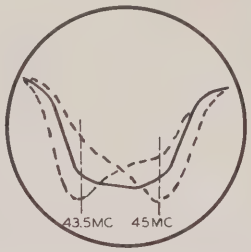


FIG.3

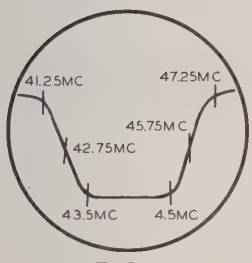


FIG.4

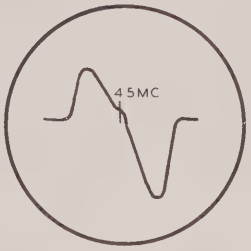


FIG.5

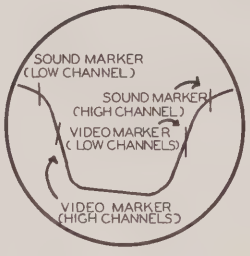


FIG.6

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the function selector switch ro "RADIO" (clockwise).
To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
10.	.05MFD	High side to pin 2 (Grid) of 12AT7 (V26). Low side to chassis.	455KC (400 ∿ Mod.)	BC (center)	Tuning gang fully closed	Across voice coil	A15, A16, A17, A18	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
11.		Loop	1600KC	"	1600KC	"	A19	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
12.		Loop	1400KC	"	Tune for max. output	"	A20, A21	"

FM IF ALIGNMENT

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
13.	.05MFD	High side to pin 1 (Grid) of 12BA6 (V27). Low side to chassis.	10.7MC (450KC Sweep)	FM (CW)	Tuning gang fully open	Vert. Amp. thru 2 Meg. to point Ⓓ. Low side to chassis.	A22, A23, A24	Adjust for maximum amplitude and symmetry as per figure 7.
14.	.05MFD	High side to pin 2 (Grid) of 12AT7 (V26). Low side to chassis.	"	"	"	"	A25, A26	"
15.	.05MFD	"	"	"	"	Vert. Amp. to point Ⓔ. Low side to chassis.	A27, A28	Adjust A27 so 10.7MC occurs at center of crossover lines as per figure 8. Adjust A28 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
16.	270Ω carbon res.	High side thru 270Ω to 'FM" antenna terminal. Low side to chassis. (Remove line antenna)	98MC (Unmod.)	FM	Set pointer to 90 on AM dial scale.	DC Probe thru 2 Meg. to Point Ⓓ. Common to chassis.	A29, A30	Adjust for maximum deflection.

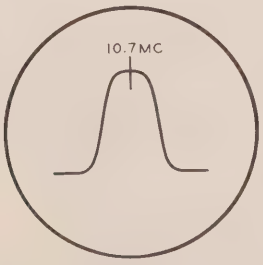


FIG. 7

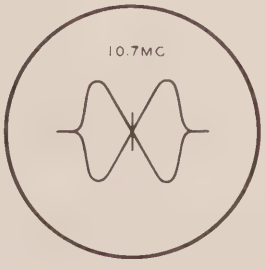


FIG. 8

ZENITH MODELS G2322, G2340,R, G2346R, G2353E, G2441,R, G2442E,R, G2448R, G2957,R, G2958R, G3059R, G3062

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BJ6	-.5VDC	.7VDC	6.3VAC	0V.	130VDC	85VDC	0V.		
V 2	6AG5	-1.2VDC	0V.	6.3VAC	0V.	135VDC	100VDC	0V.		
V 3	6C4	115VDC	0V.	6.3VAC	0V.	115VDC	§-4.8VDC	0V.		
V 4	6AU6	-2VDC	0V.	40VAC	34VAC	135VDC	135VDC	1.2VDC		
V 5	6AU6	.1VDC	0V.	34VAC	28VAC	135VDC	135VDC	1.2VDC		
V 6	6AU6	.1VDC	0V.	28VAC	22VAC	125VDC	125VDC	1.2VDC		
V 7	6AU6	0V.	0V.	22VAC	16VAC	248VDC	210VDC	3.2VDC		
V 8	12AU7	110VDC	-.5VDC	1VDC	40.5VAC	40.5VAC	330VDC	0V.	18VDC	48VAC
V 9	12AT7	140VDC	-1.7VDC	0V.	10VAC	10VAC	-1.2VDC	-.1VDC	4.4VDC	16VAC
V 10	6BN6	2.6VDC	0V.	10VAC	16.5VAC	85VDC	0V.	75VDC		
V 11	6AG7	0V.	0V.	0V.	0V.	3.6VDC	170VDC	6.3VAC	270VDC	
V 12	6AB4	230VDC	0V.	0V.	6.3VAC	0V.	-.6VDC	.8VDC		
V 13	6BN6	0V.	-1VDC	92VAC	85VAC	65VDC	0V.	80VDC		
V 14	12SN7GT	-20VDC	60VDC	0V.	0V.	125VDC 60VDC	5VDC	92VAC	105VAC	
V 15	6V6GT	0V.	6VAC	380VDC	380VDC	0V.	80VDC	0V.	28VDC 42VDC	
V 16	6AL5	-.3VDC	-4.5VDC	6VAC	0V.	-.3VDC	0V.	-2VDC		
V 17	6SN7GT	-16VDC	225VDC	.3VDC	-.5VDC	150VDC	0V.	0V.	5.4VAC	
V 18	25BQ6GT	0V.	62VAC	105VDC	105VDC	4VDC	4VDC	40VAC	12VDC	TOP CAP *
V 19	25BQ6GT	0V.	85VAC	105VDC	105VDC	4 VDC	4VDC	62VAC	12VDC	TOP CAP *
V 20	25W4GT	0V.	500VDC	500VDC	350VDC	350VDC	60VDC	40VAC	16VAC	
V 21	1B3GT	* DO NOT MEASURE.								
V 22	5U4G	0V.	440VDC	0V.	385VAC	0V.	385VAC	0V.	440VDC	
V 23	25Z6GT	0V.	70VAC	185VAC	185VDC	185VAC	0V.	46VAC	185VDC	
V 24	16EP4A	5.4VAC	0V.	PIN 10 360VDC	PIN 11 85VDC	PIN 12 11VAC				

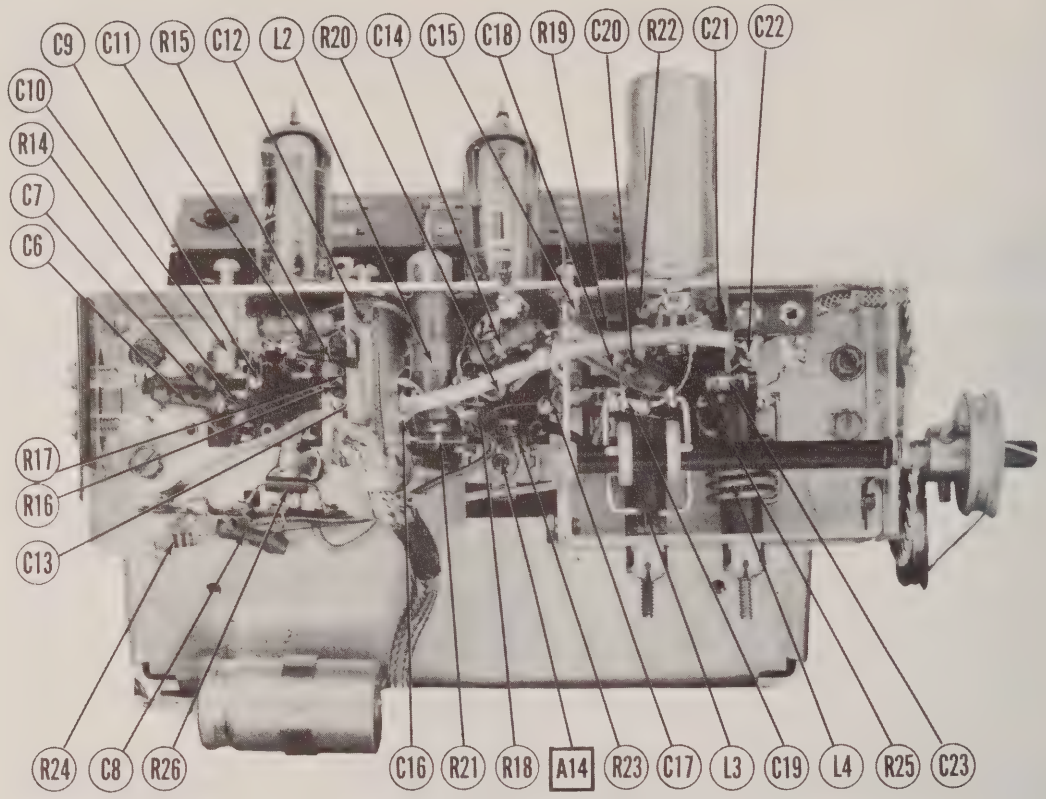
* DO NOT MEASURE.
§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

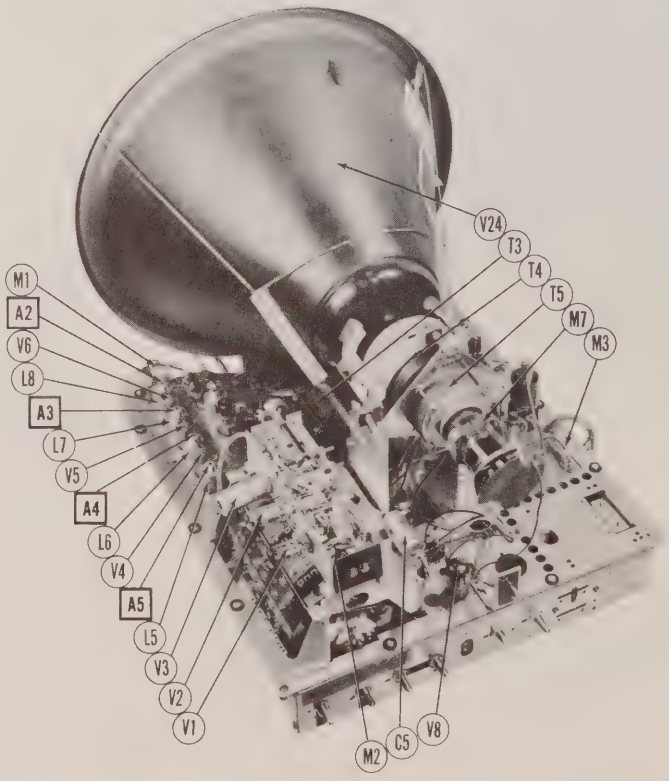
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BJ6	3 Meg.	82Ω	.1Ω	0Ω	#2KΩ	#12KΩ	0Ω		
V 2	6AG5	5.3Meg.	0Ω	.1Ω	0Ω	#1.6KΩ	#47KΩ	0Ω		
V 3	6C4	#1.6KΩ	Inf.	.1Ω	0Ω	#1.6KΩ	15KΩ	0Ω		
V 4	6AU6	2 Meg.	0Ω	61Ω	60Ω	#870Ω	#870Ω	100Ω		
V 5	6AU6	1.9 Meg.	0Ω	60Ω	58Ω	#870Ω	#870Ω	100Ω		
V 6	6AU6	1.9 Meg.	0Ω	58Ω	57Ω	#1.3KΩ	#1.3KΩ	100Ω		
V 7	6AU6	.2Ω	0Ω	57Ω	55Ω	†10KΩ	†25KΩ	330Ω		
V 8	12AU7	#3.7KΩ	3.9KΩ	100Ω	61Ω	61Ω	†8.2KΩ	1 Meg.	5.7K	63Ω
V 9	12AT7	#400Ω	1 Meg.	0Ω	54Ω	54Ω	1.6 Meg.	68KΩ	4KΩ 350Ω	55Ω
V 10	6BN6	100Ω	6Ω	54Ω	52Ω	#7.2KΩ	5Ω	#220KΩ		
V 11	6AG7	Inf.	0Ω	0Ω	100KΩ	82Ω	†15KΩ	.1Ω	†4KΩ	
V 12	6AB4	†10KΩ	0Ω	0Ω	.2Ω	Inf.	3.9KΩ	82Ω		
V 13	6BN6	0Ω	820KΩ	30Ω	32Ω	#12.4KΩ	0Ω	#44KΩ		
V 14	12SN7GT	220KΩ	†575KΩ	0Ω	147KΩ	†4.7Meg. †12 Meg.	285KΩ	30Ω	25Ω	
V 15	6V6GT	0Ω	.2Ω	†8.2KΩ	†8.2KΩ	3.3 Meg.	#85KΩ	0Ω	6.5KΩ 1.5KΩ	
V 16	6AL5	1 Meg.	120KΩ	.2Ω	0Ω	1 Meg.	0Ω	2 Meg.		
V 17	6SN7GT	86KΩ	†36KΩ	100Ω	3 Meg.	†125KΩ	0Ω	0Ω	2Ω	
V 18	25BQ6GT	Inf.	40Ω	†10KΩ	†10KΩ	220KΩ	220KΩ	46Ω	100Ω	TOP CAP †15KΩ
V 19	25BQ6GT	Inf.	32Ω	†10KΩ	†10KΩ	220KΩ	220KΩ	40Ω	100Ω	TOP CAP †15KΩ
V 20	25W4GT	Inf.	†14KΩ	†14KΩ	†140Ω	†130Ω	†52KΩ	46Ω	52Ω	
V 21	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP †15KΩ
V 22	5U4G	Inf.	50KΩ	Inf Ω	26Ω	Inf.	17Ω	Inf.	50KΩ	
V 23	25Z6GT	Inf.	65Ω	12.5Ω	11KΩ	5.5Ω	Inf.	63Ω	11KΩ	
V 24	16EP4A	2Ω	1 Meg.	PIN 10 †130Ω	PIN 11 44KΩ	PIN 12 54Ω				

† MEASURED FROM PIN 2 OF V22.
# MEASURED FROM PIN 8 OF V23.

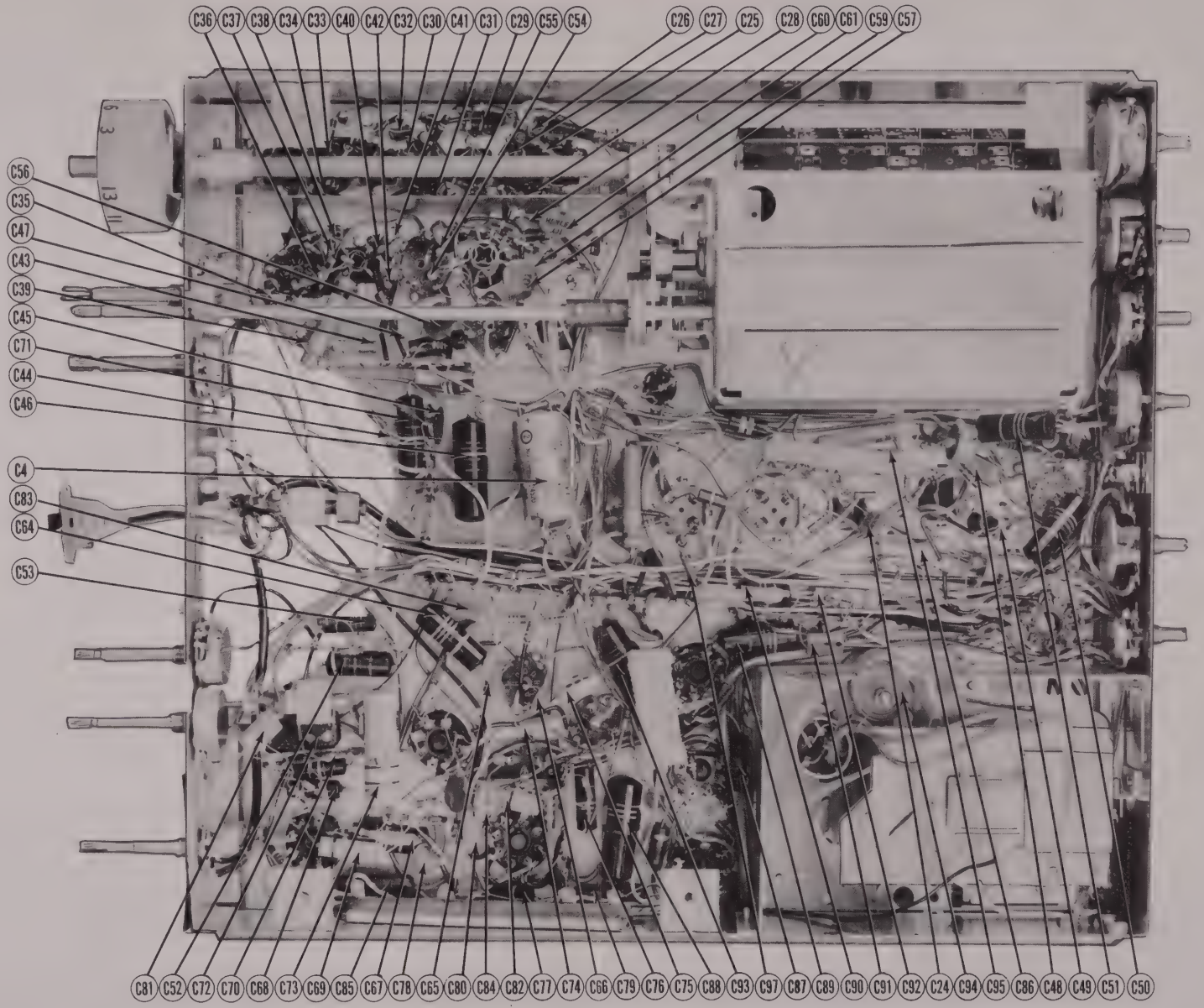
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



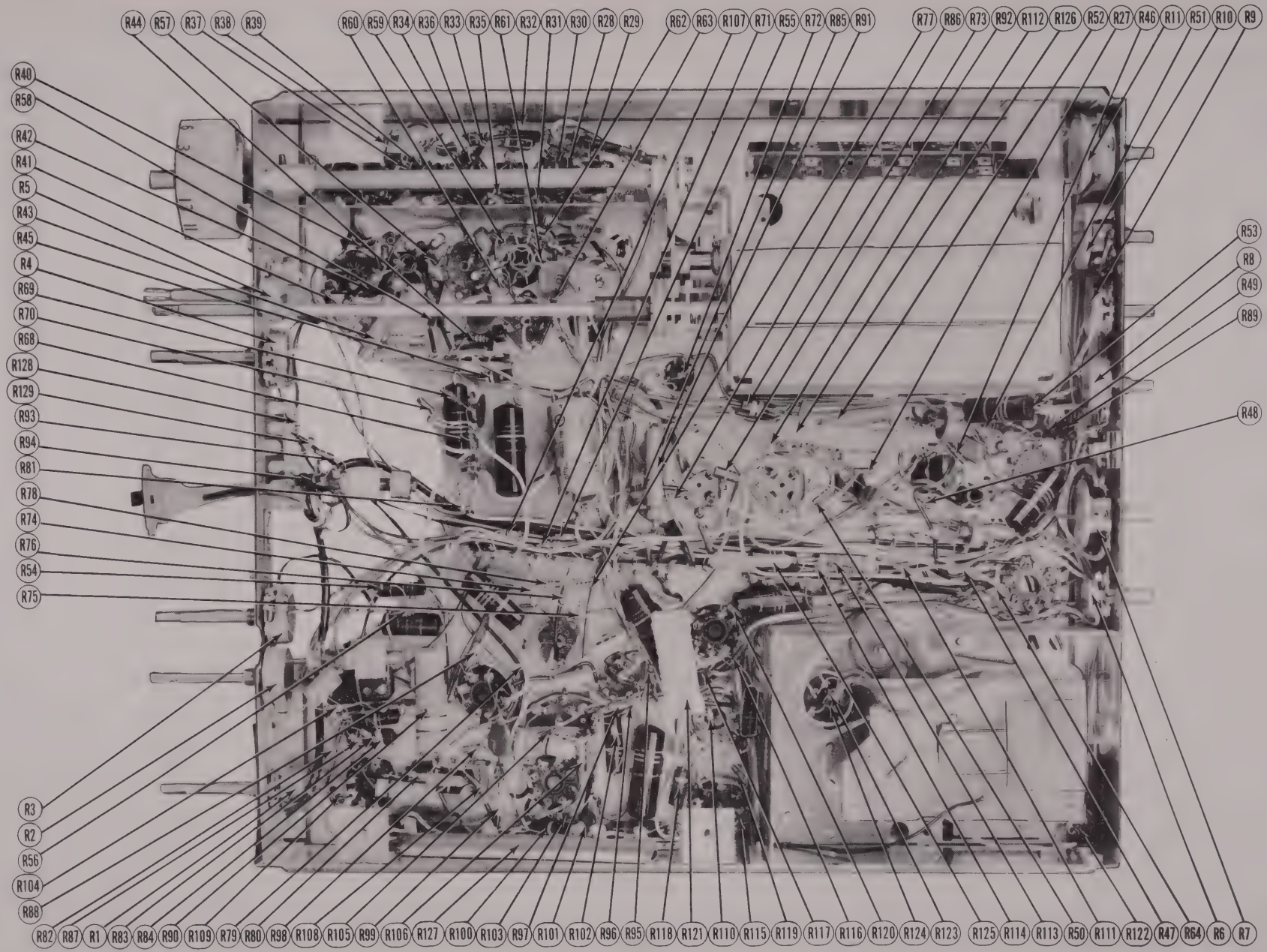
RF TUNER



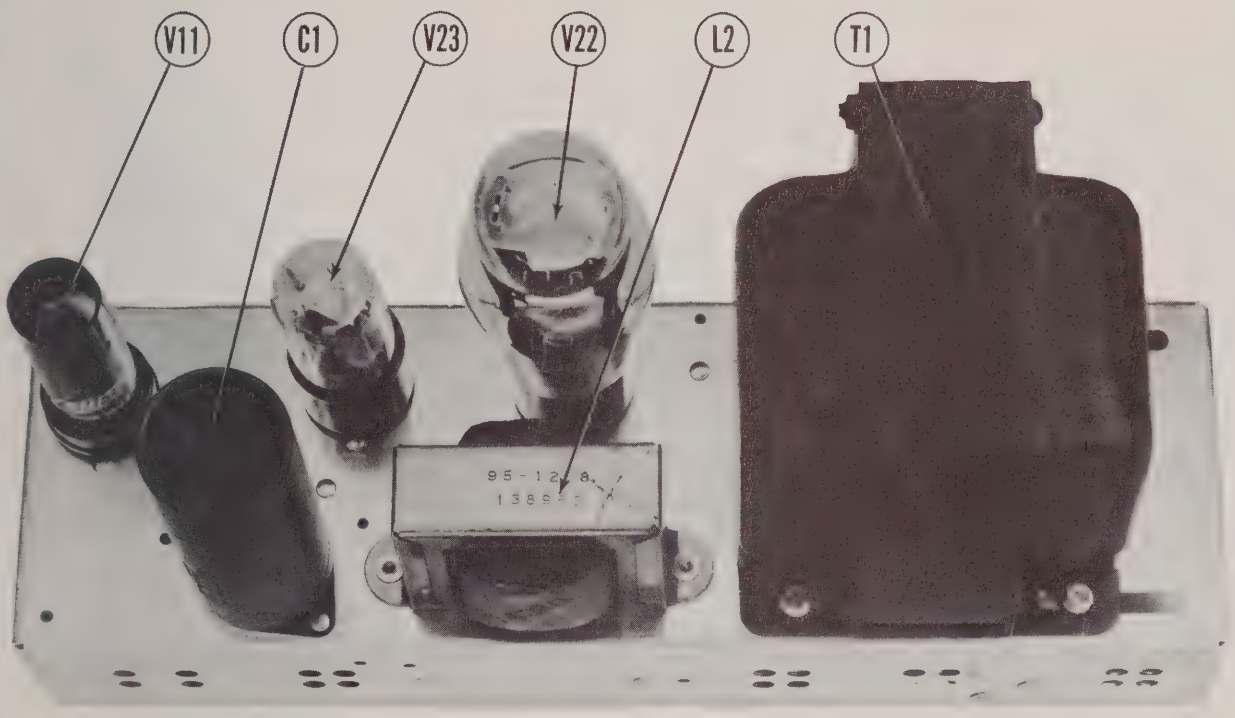
CHASSIS-TOP VIEW



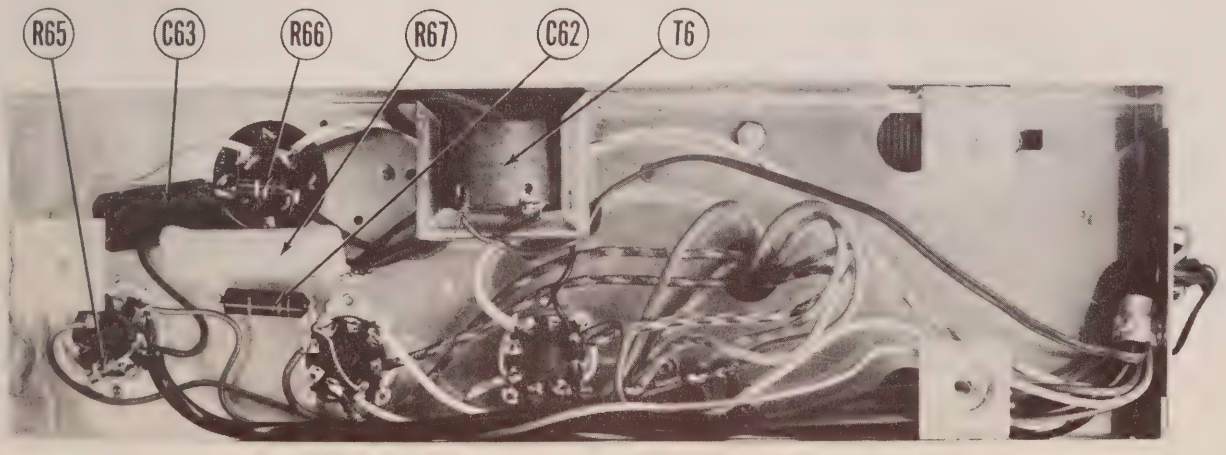
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



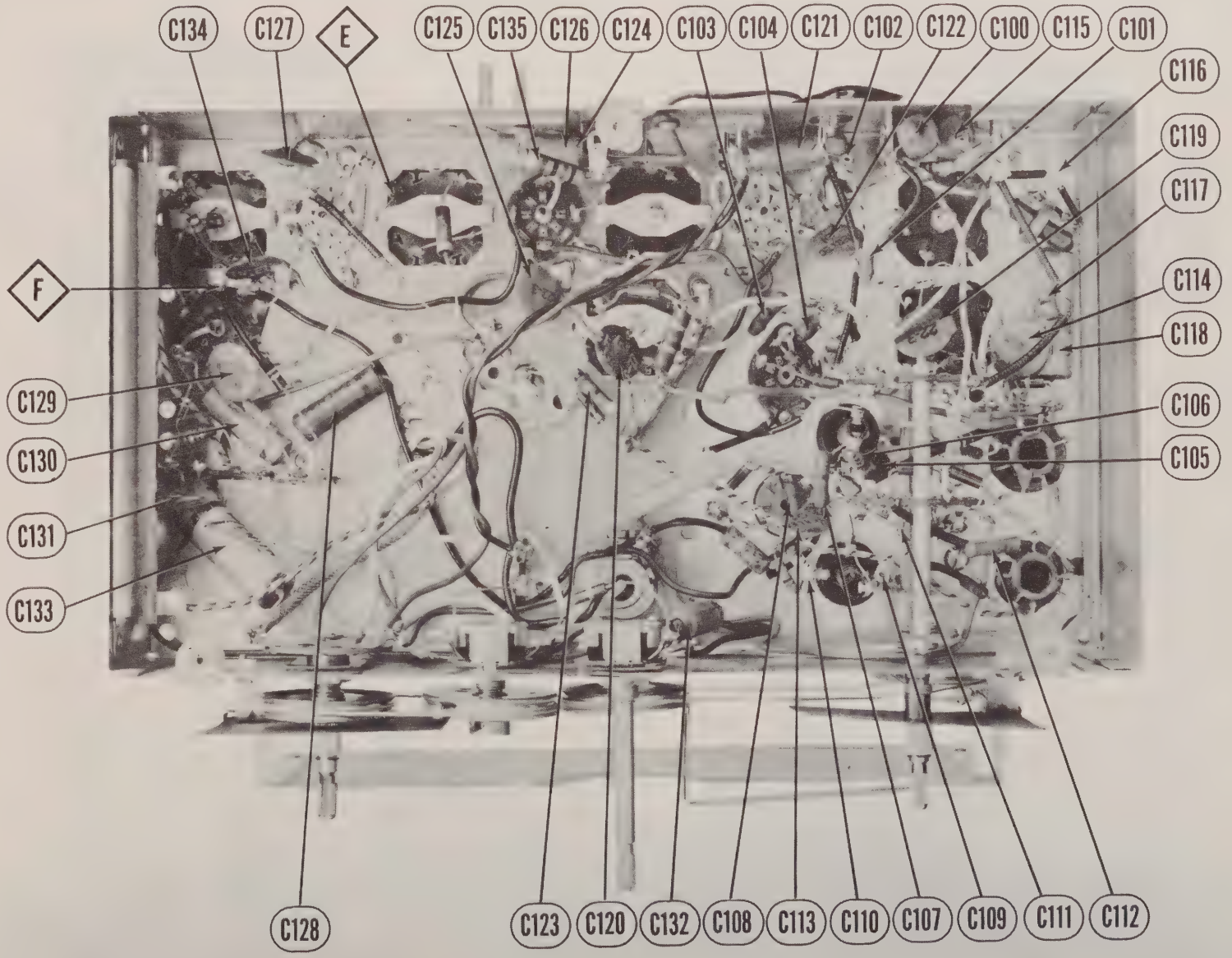
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



POWER SUPPLY CHASSIS-TOP VIEW

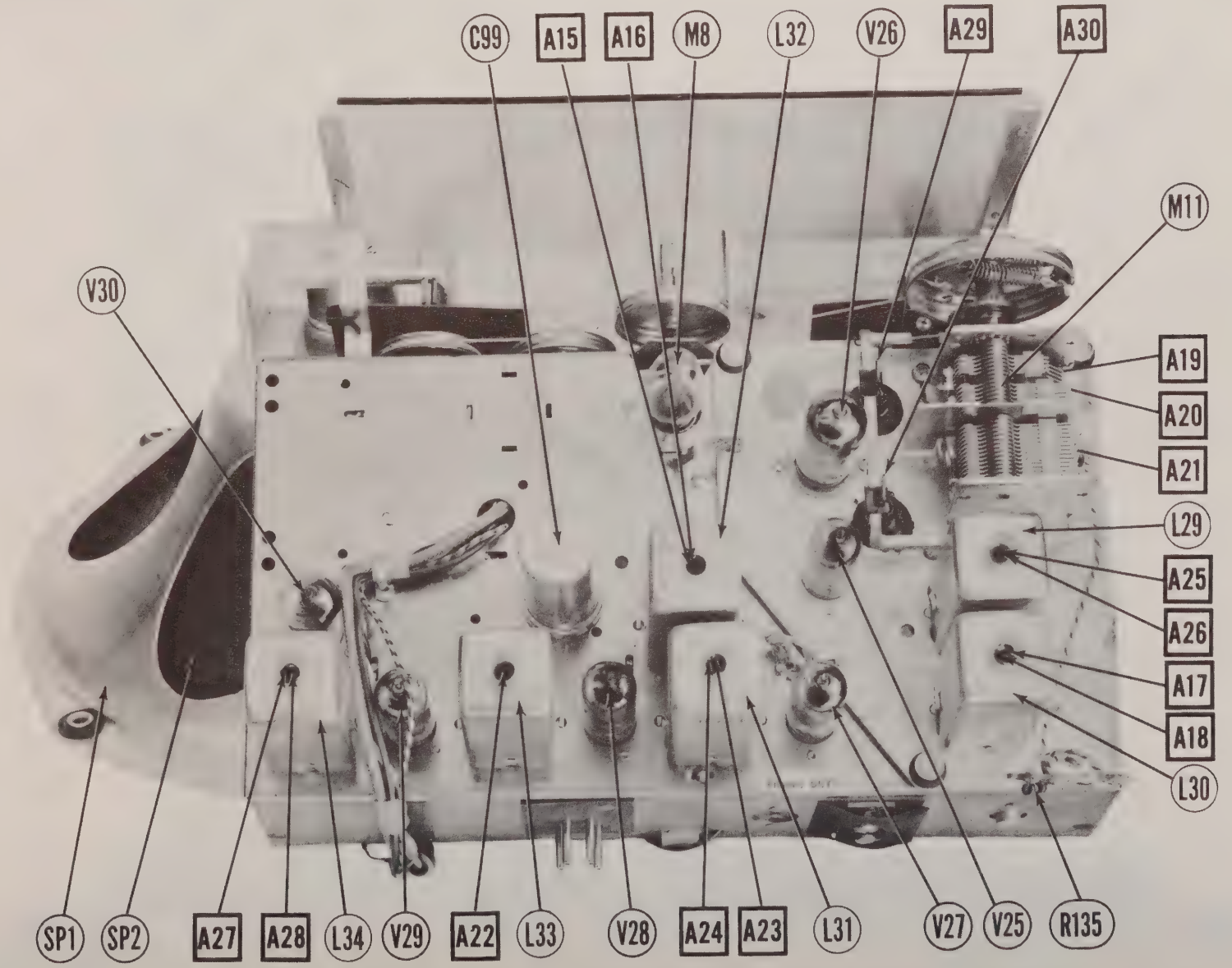


POWER SUPPLY CHASSIS-BOTTOM VIEW

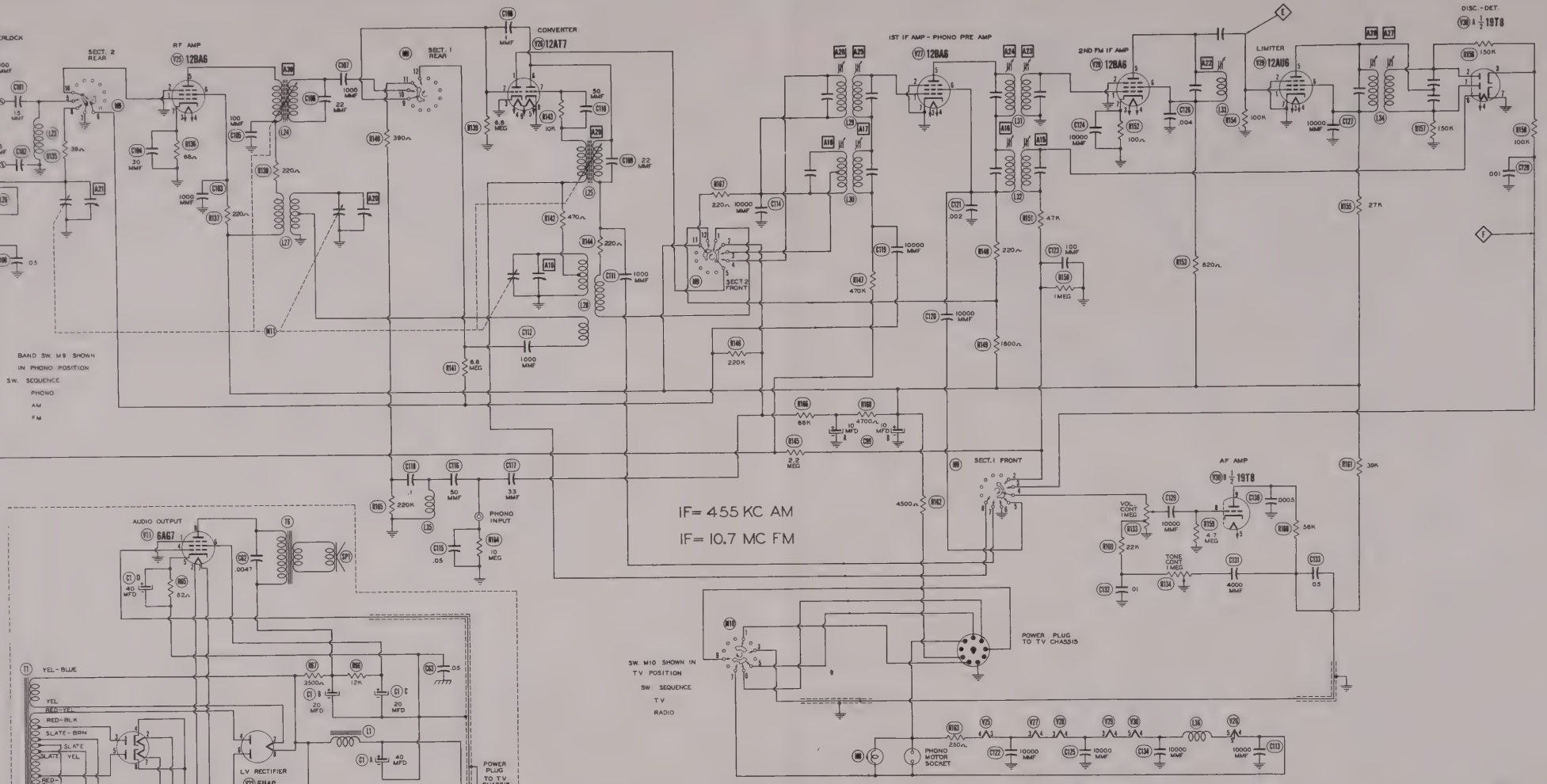


RADIO CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION

RADIO CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION



RADIO CHASSIS-TOP VIEW



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V25 12BA6	0V.	0V.	65VAC	75VAC	130VDC	130VDC	1VDC		
▲	V25 12BA6	-.3VDC	0V.	85VAC	75VAC	130VDC	130VDC	1VDC		
†	V26 12AT7	125VDC	-1.6VDC	0V.	0V.	12VAC	115VDC	9-3.7VDC	0V.	0VAC
▲	V26 12AT7	125VDC	-2VDC	0V.	0V.	12VAC	115VDC	1-4VDC	0V.	0VAC
†	V27 12BA6	-.6VDC	0V.	85VAC	55VAC	115VDC	115VDC	0V.		
▲	V27 12BA6	-.6VDC	0V.	85VAC	55VAC	115VDC	115VDC	0V.		
†	V28 12BA6	0V.	0V.	55VAC	40VAC	120VDC	120VDC	1.8VDC		
▲	V28 12BA6	0V.	0V.	55VAC	40VAC	120VDC	120VDC	1.8VDC		
†	V29 12AU6	-.5VDC	0V.	40VAC	31VAC	80VDC	80VDC	0V.		
†	V30 19T8	-1.5VDC	-13VDC	4.3VDC	15VAC	31VAC	-.8VDC	0V.	-.6VDC	75VDC
▲	V30 19T8	-1.5VDC	-13VDC	8.9VDC	15VAC	34VAC	-.8VDC	0V.	-.6VDC	75VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
†	V25 12BA6	0Ω	0Ω	54Ω	80Ω	14.7KΩ	14.7KΩ	68Ω		
▲	V25 12BA6	2.2 Meg.	0Ω	54Ω	80Ω	14.7KΩ	14.7KΩ	68Ω		
†	V26 12AT7	18KΩ	6.8 Meg.	0Ω	0Ω	12Ω	18KΩ	10KΩ	0Ω	0Ω
▲	V26 12AT7	18KΩ	4 Meg.	0Ω	0Ω	12Ω	18KΩ	10KΩ	0Ω	0Ω
†	V27 12BA6	3.5 Meg.	0Ω	54Ω	47Ω	18KΩ	18KΩ	0Ω		
▲	V27 12BA6	2.5 Meg.	0Ω	54Ω	47Ω	18KΩ	18KΩ	0Ω		
†	V28 12BA6	.5Ω	0Ω	47Ω	40Ω	15.3KΩ	15.3KΩ	100Ω		
▲	V28 12BA6	.5Ω	0Ω	47Ω	40Ω	15.3KΩ	15.3KΩ	100Ω		
†	V29 12AU6	300KΩ	0Ω	40Ω	31Ω	132KΩ	132KΩ	0Ω		
†	V30 19T8	150KΩ	150KΩ	300KΩ	150	31Ω	1 Meg	0Ω	4.7 Meg.	1100KΩ
▲	V30 19T8	150KΩ	150KΩ	300KΩ	150	31Ω	600KΩ	0Ω	4.7 Meg.	1100KΩ

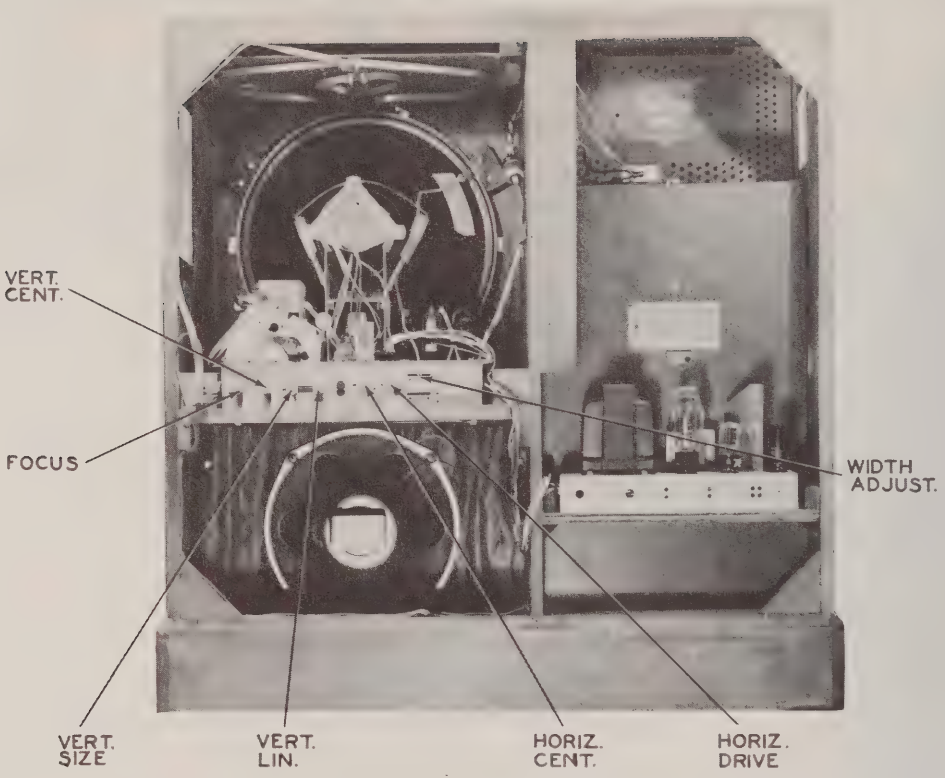
† TAKEN IN "FM" POSITION.
▲ TAKEN IN "AM" POSITION.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1950

ZENITH MODELS G2322, G2340,R, G2346R, G2353E, G2441,R, G2442E,R, G2448R, G2957,R, G2958R, G3059R, G3062

RADIO SCHEMATIC



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Connect the DC Probe of a VTVM to Point C , connect the positive lead to Point D .

Adjust the horizontal frequency slug (B1) until the meter reads zero between positive and negative swings. The voltage should swing positive and negative an equal amount as the hold control is turned to either extreme.

Turn the horizontal drive control clockwise as far as possible without crowding the right half of the picture.

Adjust the width lever until the picture is of desired width.

AGC DELAY ADJUSTMENTS

Turn the set on and tune in a TV station.

Connect the vertical amplifier of an oscilloscope to point A . Connect the low side to chassis.

Adjust the AGC delay control R13 for 3.5 volt peak to peak signal indication on the oscilloscope.

DISASSEMBLY INSTRUCTIONS

TV CHASSIS

1. Remove seven push-on type TV control knobs from front of cabinet.
2. Remove two screws holding picture control switch. Free switch from front of cabinet.
3. Remove four screws holding rear cover. Remove cover.
4. Disconnect radio-phono plug and power plug at chassis. Remove ground wire from TV chassis near power plug.
5. Disconnect built-in antenna at chassis screw connection.
6. Disconnect speaker leads at speaker connections.
7. Remove four 5/16" hex nuts holding speaker. Remove speaker.
8. Remove four 3/8" hex head bolts holding TV chassis. Remove chassis.

POWER UNIT

9. Free connecting cable. Remove three 3/8" hex head bolts holding power chassis. Remove chassis.

RADIO CHASSIS

10. Remove five push-on type radio control knobs from front of cabinet.
11. Remove two screws holding rear cover. Remove cover. Disconnect loop and external antenna connections.
12. Disconnect phono input and power plugs from rear of chassis.
13. Remove three 1/4" hex head bolts holding chassis. Remove chassis.

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6BJ6	6BJ6	7CM	
V2	Mixer	6AG5	6AG5	7BD	
V3	Oscillator	6C4	6C4	6BG	
V4	1st Video IF	6AU6	6AU6	7BK	
V5	2nd Video IF	6AU6	6AU6	7BK	
V6	3rd Video IF	6AU6	6AU6	7BK	
V7	4th Video IF	6AU6	6AU6	7BK	
V8	Video Amp.	12AU7	12AU7	9A	
V9	AGC Amp.-Sound IF Amp.	12AT7	12AT7	9A	
V10	Limiter-Sound Det.	6BN6	6BN6	7DF	
V11	Audio Output	6AG7	6AG7	8Y	
V12A	Sync. Amp.	6AB4	6AB4	5CE	
B	Sync. Amp.	12AT7	12AT7	9A	Alternate for chassis 23G22/23 only.
V13	Sync. Sep.	6BN6	6BN6	7DF	
V14	Vert. Osc.-Hor. Disch.	12SN7GT	12SN7GT	8BD	
V15A	Vert. Output	6V6GT	6V6GT	7AC	
B	Vert. Output	6AQ5	6AQ5	7BZ	Used in chassis 23G22/23 only.
V16	Hor. Phase Det.	6AL5	6AL5	6BT	
V17	Hor. AFC-Hor. Osc	6SN7GT	6SN7GT	8BD	
V18A	Hor. Output	25BQ6GT	25BQ6GT	6AM	Used in chassis 24G22/23 and 24G24/25 only.
B	Hor. Output	19BG6G	19BG6G	5BT	Used in chassis 23G22/23 only.
V19	Hor. Output	25BQ6GT	25BQ6GT	6AM	Used in chassis 24G22/23 and 24G24/25 only.
V20	Damper	25W4GT	25W4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	
V22	LV Rectifier	5U4G	5U4G	5T	
V23	LV Rectifier	25Z6GT	25Z6GT	7Q	
V24A	Picture Tube	16EP4A	16EP4A	12D	Original tube used in set. Chassis 24G22/23, 24G24/25 only.
B	Picture Tube	16EP4	16EP4	12D	Manufacturers original. Chassis 24G22/23, 24G24/25 only.
C	Picture Tube	12UP4A	12UP4A	12D	Manufacturers original. Chassis 23G22/23 only.
D	Picture Tube	12UP4	12UP4	12D	Manufacturers replacement. Chassis 23G22/23 only.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	22-2121	AF844J8A			TVL-413	▲ Filter
B	20	450						■ Filter
C	20	450						▲ Output Screen Bypass
D	40	25						Output Cathode Bypass
C2A	15	475	22-2122	AF33X16G8B			TVL-411	▲ Filter
B	15	475						■ Decoupling
C	80	300						▲ Filter
D	40	50						Video Output Cathode Bypass
C3A	25	475	22-2123	AF5X4J8G20B			TVL-412	▲ Decoupling
B	20	450						■ Decoupling
C	40	300						▲ Filter
D	100	50						Vert. Output Cath. Bypass
C4A	100	20	22-2164	PRS25/100			TVA-8	Vert. Cent. Cont. Bypass *
B	500	3		PRS6/500			TVA-27	Hor. Cent. Cont. Bypass *
C5	20	300	22-2171	PRS350/24			TVA-92	Filter *
C6	100		22-5	GP100M	D6-101	GP1K-100		Ant. Coupling
C7	100		22-5	GP100M	D6-101	GP1K-100		Ant. Coupling
C8	470		22-2143	GP470M	D6-471	GP2K-470		AGC Filter
C9	10		22-2130	GP10K	D6-100	GP1K-10		RF Coupling
C10	.5-3		22-2093		829-3			Variable Trimmer
C11	470		22-2143	GP470M	D6-471	GP2K-470		RF Filament Bypass
C12	.5-3		22-2093		829-3			Variable Trimmer
C13A	110		27-138					RF Screen Bypass
B	400							RF Decoupling
C14	470		22-2217	GP470M	D6-471	GP2K-470		RF Bypass
C15	.5-3		22-2093		829-3			Variable Trimmer
C16A	400		27-138					Fixed Padder
B	110							Mixer Screen Bypass
C17	4.5		22-1951	CN4.5DN750		N750K-4.5		Osc. Coupling
C18	2.5		22-1891	CN2.5DN080		N080K-2.5		Osc. Coupling
C19	20		22-2204	CN20JN030		N030K-20		Fixed Trimmer
C20	47		22-1876	GP47K	D6-470	GP1K-47		Osc. Grid Cap.
C21	470		22-2143	GP470M	D6-471	GP2K-470		Osc. Filament Bypass
C22	6		22-2051	SI6DNPO		NPOK-6		IF Coupling
C23	26		22-2155	CN26JN080		N080K-26		Fixed Trimmer
C24	5000		22-4	BPD-5	D6-502	811-005	29C1	RF Bypass
C25	470		22-2217	GP470M	D6-471	GP2K-470	1FM-35	IF Coupling
C26	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	AGC Filter
C27	500		22-2216	GP500M	D6-501	GP2K-500	1FM-35	1st V. IF Decoupling
C28	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	1st V. IF Fil. Bypass
C29	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	AGC Filter
C30	500		22-2216	GP500M	D6-501	GP2K-500	1FM-35	2nd V. IF Decoupling
C31	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	2nd V. IF Fil. Bypass
C32	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	AGC Filter
C33	500		22-2216	GP500M	D6-501	GP2K-500	1FM-35	3rd V. IF Decoupling
C34	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	3rd V. IF Fil. Bypass
C35	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	4th V. IF Cath. Bypass
C36	500		22-2216	GP500M	D6-501	GP2K-500	1FM-35	4th V. IF Screen Bypass
C37	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	4th V. IF Fil. Bypass
C38	470		22-2217	GP470M	D6-471	GP2K-470	1FM-35	4th V. IF Decoupling
C39	4000		22-4	BPD-5	D6-472	811-005	29C1	RF Bypass
C40	200		22-2054	GP200K	D6-201	GP2K-200	1FM-32	IF Coupling
C41	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	AGC Amp. Cathode Bypass
C42	15		22-2134	GP15K	D6-150	GP1K-15	MS-415	AGC Amp. Plate Bypass
C43	150		22-2144	GP150K	D6-151	GP2K-150	1FM-315	AGC Filter
C44	1000		22-1888	GP1000M	D6-102	GP2L-001	1FM-21	AGC Filter
C45	10000		22-3	BPD-10	D6-103	821-01	36C1	AGC Filter
C46	.22	200	22-2167	P488-22			TC-2	AGC Filter
C47	7		22-1874	GP10K	D2-6.8	NPOK-6.8	MS-41	V. Det. Filter
C48	.003	200	22-2157	P688-003	D6-302	GP2M-003	TM-23	V. Amp. Cath. Bypass
C49	47		22-1876	CN47KN080		N080-338-47		Fixed Trimmer
C50	.047	600	22-1844	P688-047			TM-15	Video Coupling
C51	.047	600	22-1844	P688-047			TM-15	Video Coupling
C52	.1	200	22-1777	P288-1			TM-1	Pic. Tube Cath. Bypass
C53	.0022	600	22-1845	P688-0022			TM-22	Vert. Sweep Coupling
C54	10		22-1953	GP10K	D6-100	GP1K-10	MS-41	S. IF Coupling
C55	50		22-1761	GP50K	D6-500	GP1K-50	1FM-45	S. IF Coupling

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56	10000		22-3	BPD-10	D6-103	821-01	36C1	Sound Det. Cath. Bypass
C57	10000		22-3	BPD-10	D6-103	821-01	36C1	Sound Det. Screen Bypass
C58	10		22-2106	CN10DN150		N150K-10		Fixed Trimmer
C59	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	Sound Det. Filament Bypass
C60	1000		22-2218	GP1000M	D6-102	GP2L-001	1FM-21	Sound Det. Plate Bypass
C61	10000		22-3	BPD-10	D6-103	821-01	36C1	Audio Coupling
C62	.0047	600	22-1782	P688-0047	D6-472	GP2M-0047	TM-25	Output Plate Bypass
C63	.05	400	22-1775	P488-05			TM-15	Line Isolation
C64	.047	600	22-1844	P688-047			TM-15	Sync. Coupling
C65	50		22-1761	GP50M	D6-500	GP1K-50	1FM-45	Sync. Amp. Grid Bypass
C66	5000		22-4	BPD-5	D6-502	811-005	29C1	Sync. Amp. Screen Bypass
C67	.047	600	22-1775	P688-047			TM-15	Vert. Sync. Coupling
C68	.0033	600	22-1780	P688-0033	D6-332	GP2M-0033	TM-23	Voltage Divider
C69	.0012	1000	22-1880					Vert. MV Grid Cap.
C70	.001	600	22-2128	P688-001	D6-102	GP2L-001	TM-21	Vert. MV Feedback
C71	.15	200	22-2166	P288-15			TC-2	Vert. MV Cath. Bypass
C72	.01	600	22-1843	P688-01			TM-11	Vert. Discharge
C73	.1	600	22-1841	P688-1			TM-1	Vert. Sweep Coupling
C74	100	500	22-365	1468-0001	D6-101	GP1K-100	1FM-31	Hor. Sync. Coupling
C75	130	500	22-2162					AFC Filter
C76	.022	200	22-2071	P488-022			TM-12	AFC Filter
C77	.005	200	22-1847	P688-005	D6-502	811-005	TM-25	Hor. Sync. Coupling
C78	5000		22-4	BPD-5	D6-502	811-005	29C1	AFC Filter
C79	.047	200	22-1778	P288-047			TM-15	AFC Filter
C80	470	500	22-1138	1468-0005	D6-471	GP2K-470	1FM-35	Fixed Trimmer
C81	220	500	22-1461	1468-0002	D6-221	GP2K-220	1FM-32	Fixed Trimmer
C82	.0022	400	22-1803	P688-0022	D6-222	GP2M-0022	TM-22	Hor. Osc. Grid Cap.
C83	1000	500	22-2163	1464-001			MS-21	Fixed Trimmer
C84	150	500	22-470	1468-00015	D6-151	GP2K-150	1FM-315	Differentiator Net.
C85	.01	600	22-1846	P688-01	D6-103	821-01	TM-11	Hor. Sweep Coupling
C86	680	500	22-2034		D6-681	GP2K-680	1FM-37	Hor. Discharge
C87	.001	1000	22-1851	P1088-001			TR-21	Hor. Sweep Coupling
C88	.33	200	22-2159	P288-33			TC-5	Hor. Output Cath. Bypass
C89	.047	600	22-1844	P688-047			TM-15	Hor. Output Screen Bypass
C90	.001	600	22-2128	P688-001	D6-102	GP2L-001	TM-21	Hor. Feedback
C91	37	500	22-2160	1469-000025	D6-270	GP1K-27	MS-425	Integrator Net.
C92	.0022	200	22-2161	P688-0022	D6-222	GP2M-0022	TM-22	Integrator Net.
C93	.22	200	22-2145	P488-22			TC-2	Damper Filter
C94	500	15000	22-1832		TV3-502			HV Filter †
C95	470		22-2143	GP470M	D6-471	GP2K-470	1FM-35	Pic. Tube Fil. Bypass
C96	.47	200	22-2098	P288-47			TC-5	Hor. Sweep Coupling †
C97	470		22-2217	GP470M	D6-471	GP2K-470	1FM-35	RF Bypass
C98	.047	200	22-1778	P288-047			TM-15	Fixed Trimmer †

* Used only in chassis 24G22, 24G23, 24G24 and 24G25.
† Used only in chassis 23G22 and 23G23.
‡ Chassis 23G22 and 23G23 uses 500MMF 12KV. MFGR'S Part No. 22-2120.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	63-2072	Q13-133	AM-60-Z	BSK-60-S	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	*	Attach to R1A per instructions
R2A	100KΩ	½	63-2074	Q11-128	AM-49-S	AN-40	Horiz. hold control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R2A per instructions
R3A	100KΩ	½	63-2074	Q11-126	AM-49-S	AN-40	Brightness control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R3A per instructions
R4A	200KΩ	½	63-2107	Q11-130	AM-52-S	AN-50	Vert. hold control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R4A per instructions
R5A	5000Ω	½	63-2073			AN-12	Contrast control
B	Shaft		Not Req.			AK-4	Attach to R5A per instructions
R6A	25KΩ	½	63-1675	Q11-120	M-40-S	AN-26	Horiz. drive control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R6A per instructions
R7	100Ω	3	63-1669	W-100	43-100	V-121	Horiz. centering control-Wire Wound-See Note 1
R8A	5000Ω	½	63-1674	Q11-114	M-19-S	AN-10	Vert. linearity control
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R8A per instructions
R9A	7.5 Meg.	½	63-2110	Q11-143	M-86-S	AN-98	Vert. size control-See Note 2
B	Shaft		Not Req.	Not Req.	Not Req.	AK-1	Attach to R9A per instructions
R10	20Ω	2	63-2098	W-20 x 10	43-20 CT	SVT-901	Vert. centering control-Wire Wound-tapped at 10Ω - See Note 1
R11	20KΩ	4	63-2099				Focus control-Wire Wound-See Note 1
R12	1000 to 500Ω	1	63-2050				Bias control-Wire Wound
R13	350Ω to 4000Ω	1	63-1690				AGC delay control-Wire Wound

* Switch is attached at factory.
Note 1. Not used in chassis 23G22 and 23G23.
Note 2. Chassis 24G22 and 24G23 use a 3.5 Meg. control Part No. 63-2036.

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R14	1 Meg.	½	63-1912		RF Grid
R15	82Ω	½	63-1740		RF Cathode
R16	10KΩ	½	63-1827	BTS-10K	RF Screen
R17	4700Ω	½	63-1813		RF Plate
R18	1000Ω	½	63-1785	BTS-1000	RF Decoupling
R19	3.3 Meg.	½	63-1933		Mixer Grid
R20	47KΩ	½	63-1855		Mixer Screen
R21	1000Ω	½	63-1785	BTS-1000	Mixer Plate Decoupling
R22	15KΩ 20%	½	63-1835		Osc. Grid
R23	1000Ω	½	63-1785	BTS-1000	Osc. Plate Decoupling
R24	1000Ω	½	63-1785	BTS-1000	AGC Network
R25	10Ω	½			Parasitic Supp. -See Note 3
R26	100Ω 20%	½	63-1744		Decoupling
R27	100Ω 20%	½	63-1744		Decoupling
R28	1000Ω	½	63-1785	BTS-1000	AGC Network
R29	10KΩ	½	63-1827		1st Video IF Coil Shunt
R30	100Ω	½	63-1743		1st Video IF Cathode
R31	470Ω 20%	½	63-1772	BTS-470	1st Video IF Decoupling
R32	470Ω 20%	½	63-1772	BTS-470	AGC Network
R33	15KΩ	½	63-1834		2nd Video IF Coil Shunt
R34	100Ω	½	63-1743		2nd Video IF Cathode
R35	470Ω 20%	½	63-1772	BTS-470	2nd Video IF Decoupling

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES
R36	470Ω 20%	½	63-1772	BTS-470	AGC Network
R37	15KΩ	½	63-1834		3rd Video IF Coil Shunt
R38	100Ω	½	63-1743		3rd Video IF Cathode
R39	470Ω	½	63-1772	BTS-470	3rd Video IF Decoupling
R40	8200Ω	½	63-1824		4th Video IF Coil Shunt
R41	330Ω	½	63-1764		4th Video IF Cathode
R42	15KΩ	½	63-1834		4th Video IF Screen
R43	10KΩ	2	63-1198	BT-2-10K	4th Video IF Decoupling
R44	68KΩ	½	63-1862	BTS-68K	Peaking Coil Shunt
R45	3900Ω 5%	1	63-1809	BTA-3900-5%	Video Det. Load
R46	100Ω	½	63-1743		Video Amp. Cathode
R47	2700Ω	½	63-1803	BTS-2700	Peaking Coil Shunt
R48	3300Ω	½	63-1806	BTS-3300	Video Amp. Plate
R49	1 Meg. 20%	½	63-1912	BTS-1 Meg.	Video Amp. Grid
R50	680Ω	½	63-1778	BTS-680	Video Amp. Cathode
R51	22KΩ	½	63-1841	BTS-22K	Peaking Coil Shunt
R52	8200Ω 5%	2	63-1980	BT-2-8200	Video Amp. Plate
R53	1 Meg. 20%	½	63-1912	BTS-1 Meg.	Picture Tube Grid
R54	8200Ω	½	63-1824	BTS-8200	Voltage Divider
R55	68KΩ	½	63-1862	BTS-68K	Voltage Divider
R56	270KΩ	½	63-1887	BTS-270K	Feedback
R57	68KΩ 20%	½	63-1863	BTS-68K	AGC Amp. Grid
R58	10000Ω 20%	½	63-1788	BTS-1000	AGC Amp. Plate
R59	68KΩ	½	63-1862	BTS-68K	Delayed AGC Network
R60	1 Meg. 20%	½	63-1912	BTS-1 Meg.	Sound IF Grid
R61	6800Ω	½	63-1821		Limiter Screen
R62	220KΩ	½	63-1884		Limiter Plate
R63	680Ω	½	63-1778	BTS-680	Isolation
R64	100KΩ	½	63-1869	BTS-100K	Output Grid
R65	82Ω	½	63-1740	BW-½-82	Output Cathode
R66	12KΩ	1	63-1975	BTA-12K	Filter
R67	3500Ω	10	63-2023	AB-3500	Filter-Wire Wound
R68	220KΩ 20%	½	63-1884	BTS-220K	AGC Network
R69	220KΩ 20%	½	63-1884	BTS-220K	AGC Network
R70	1.5 Meg. 20%	½	63-1919	BTS-1.5 Meg.	AGC Network
R71	3.9 Meg.	½	63-1936	BTS-3.9 Meg.	Voltage Divider
R72	82Ω	½	63-1740		Sync. Amp. Cathode
R73	10KΩ	2	63-1198	BT-2-10K	Sync. Amp. Plate
R74	820KΩ	½	63-1908	BTS-820K	Sync. Sep. Grid
R75	12KΩ	½	63-1831	BTS-12K	Sync. Sep. Screen
R76	22KΩ	½	63-1841	BTS-22K	Sync. Sep. Plate
R77	22KΩ	½	63-1841	BTS-22K	Sync. Sep. Plate
R78	33KΩ	½	63-1848	BTS-33K	Voltage Divider
R79	47KΩ	½	63-1855	BTS-47K	Integrator Network
R80	15KΩ	½	63-1834	BTS-15K	Vert. Osc. Cathode
R81	68KΩ	½	63-1862	BTS-68K	Voltage Divider
R82	47KΩ	½	63-1855	BTS-47K	Vert. Osc. Grid-See Note 4
R83	100KΩ	½	63-1869	BTS-100K	Vert. Osc. Grid-See Note 5
R84	4.7 Meg.	½	63-1939	BTS-4.7 Meg.	Vert. Osc. Plate-See Note 6
R85	68KΩ	½	63-1862	BTS-68K	Voltage Divider
R86	68KΩ	½	63-1862	BTS-68K	Decoupling
R87	33KΩ	½	63-1848	BTS-33K	Vert. Peaking
R88	3.3 Meg.	½	63-1932	BTS-3.3 Meg.	Vert. Output Grid
R89	1500Ω	1	63-1967	BTA-1500	Vert. Output Cathode
R90	100KΩ	½	63-1869	BTS-100K	Feedback
R91	8200Ω	5	63-1483		Decoupling-See Note 7
R92	8200Ω	1	63-1576	BTA-8200	Filter
R93	270Ω	½	63-1761		Picture Control Network
R94	100Ω	½	63-1743		Picture Control Coil Shunt
R95	1 Meg.	½	63-1911	BTS-1 Meg.	Horiz. Phase Det. Load
R96	1 Meg.	½	63-1911	BTS-1 Meg.	Horiz. Phase Det. Load
R97	2200Ω 20%	½	63-1800	BTS-2200	Horiz. Phase Det. Load
R98	180KΩ	½	63-1880	BTS-180K	Horiz. Phase Det. Load
R99	330KΩ	½	63-1890	BTS-330K	Horiz. AFC Filter Network
R100	1 Meg.	½	63-1911	BTS-1 Meg.	Horiz. AFC Filter Network
R101	68KΩ 20%	½	63-1863	BTS-68K	Horiz. AFC Filter Network
R102	270KΩ	½	63-1887	BTS-270K	Feedback Network
R103	120KΩ	½	63-1873	BTS-120K	Horiz. AFC Plate
R104	27KΩ	½	63-1845	BTS-27K	Voltage Divider
R105	100KΩ	½	63-1869	BTS-100K	Horiz. Osc. Grid
R106	33KΩ	1	63-1398	BTA-33K	Horiz. Osc. Plate
R107	100KΩ	½	63-1869	BTS-100K	Voltage Divider
R108	18KΩ	½	63-1838	BTS-18K	Differentiator
R109	220KΩ 20%	½	63-1884	BTS-220K	Horiz. Discharge Grid
R110	560KΩ	½	63-1901	BTS-560K	Horiz. Discharge Plate
R111	6800Ω	½	63-1821	BTS-6800	Horiz. Peaking-See Note 8
R112	3300Ω 20%	½	63-1807	BTS-3300	Decoupling
R113	56KΩ	½	63-1859	BTS-56K	Feedback Network
R114	56KΩ	½	63-1859	BTS-56K	Feedback Network
R115	150Ω 20%	½	63-1751		Parasitic Supp.
R116	150Ω 20%	½	63-1751		Parasitic Supp. -See Note 9
R117	220KΩ 20%	½	63-1884	BTS-220K	Horiz. Output Grid-See Note 10
R118	100Ω	2	63-1973	BW-2-100	Horiz. Output Cathode-See Note 11
R119	100Ω 20%	½	63-1744		Parasitic Supp. -See Note 9
R120	100Ω 20%	½	63-1744		Parasitic Supp. -See Note 9
R121	10KΩ	10	63-1684	AB-10K	Horiz. Output Screen-Wire Wound
R122	15KΩ 20%	1	63-972	BTA-15K	Width Coil Shunt
R123	470KΩ 20%	½	63-1898		HV Filter
R124	2.2Ω 20%	½			HV Rect. Filament-See Note 3
R125	3300Ω	5	63-1535		Series Focus Control-Wire Wound-See Note 9
R126A	200Ω	5	63-2103	AB-200	Filter-Wire Wound
B	200Ω	5		AB-200	Filter-Wire Wound
R127A	25Ω	3	63-2102		Filament Dropping-Wire Wound-See Note 12
B	150Ω	15			Filament Dropping-Wire Wound-See Note 12
R128	100KΩ	½	63-1870	BTS-100K	Series Pilot Lamp
R129	100KΩ	½	63-1870	BTS-100K	Isolation
R130	1500Ω	1	63-1967	BTA-1500	Vert. Output Decoupling-See Note 13
R131	400Ω	5	63-2077	AB-400	Filter-Wire Wound-See Note 13
R132	6800Ω	½	63-1821	BTS-6800	Peaking Coil Shunt-See Note 14

Note 3. Not used in all models.
Note 4. Used in chassis 24G24 and 24G25 only.
Note 5. Chassis 23G22 and 23G23 use 330KΩ resistor in this application.
Note 6. Some models use 3.3 Meg. resistor in this application.
Note 7. Some models use two resistors in parallel to obtain required resistance and wattage.
Note 8. Chassis 23G22, 23G23, 24G22 and 24G23 use 4700Ω resistor in this application.
Note 9. Not used in chassis 23G22 and 23G23.
Note 10. Chassis 23G22 and 23G23 use 470KΩ resistor in this application.
Note 11. Chassis 23G22 and 23G23 use 150Ω resistor in this application.
Note 12. Chassis 23G22 and 23G23 use two section candohm with values of 100Ω and 170Ω.
Note 13. Used in chassis 23G22 and 23G23 only.
Note 14. Used in some chassis 23G22 and 23G23 only.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1A	117VAC ⑥ 1.45A	760VCT @ 3A	5VAC @ 3A		95-1232 ①			
		Tap @ 350VCT .108ADC						
B					95-1197 ②			
C					95-1216 ③			

① Used in chassis 24G24, 24G25.
② Used in chassis 23G22, 23G23.
③ Used in chassis 24G22, 24G23.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2A	390Ω	3.3Ω	S-16566 ⑤				Hor. Output Trans.
	Tap @ 35Ω	Tap @ 2Ω					
		SEC. 2 0Ω					
B			S-16204 ⑧				Hor. Output Trans.
T3A	660Ω	10Ω	95-1219 ⑤	A-8115 ⑦	A-3035 ④		Vert. Output Trans.
B	590Ω	14Ω	95-1112 ⑧	A-8112	A-3037	TSO-5	Vert. Output Trans.
T4A	17Ω		95-1198 ⑤	DY-1	MD-3		Hor. Deflection Coil
B	65Ω						Vert. Deflection Coil
T4			95-1217 ⑧				Horiz.-Vert. Deflection Coil
T5	1.3KΩ		95-1220 ⑤				Focus Coil

④ Drill new mounting holes.
⑤ Used in chassis 24G22, 24G23, 24G24, 24G25.
⑥ Used in chassis 23G22, 23G23.
⑦ Replace brackets on A-8115 with old shell and mount in original holes or else mount A-8115 vertically, as is, with new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T6	5.9KΩ	3.5Ω	440Ω	.5Ω	95-1167	A-3877	A-2930	RO-9	

SPEAKER

ITEM No.	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
				ST-102 ⑧		⑧ Replace output transformer to match 6-8Ω voice coil.
SP1A	PM	3.5Ω	49-624	MOD. P12-8	12A4A	
B	PM	3.5Ω	49-670		8A31	
C	PM	3.5Ω	49-649		10A31	
	CONE DIA.	V. C. DIA.				
SP2A	11 1/4"	1"				
B	7 7/8"	3/4"				
C	9 3/8"	1"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT	REPLACEMENT DATA ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1A	.200ADC	100Ω	4.9 Henry	95-1170***	C-1646 ■	C-2896	TR-4200 •	■ Drill new mounting holes.
B				95-1218 ###				• Drill one new mounting hole.

*** Used in chassis 24G22, 24G23, 24G24, 24G25.
Used in chassis 23G22, 23G23

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	MEISSNER PART No.	NOTES
L2	Conv. Plate	.2Ω		S-16263		
L3	Osc. Coil	.3Ω		S-16265		
L4	1st Video IF Coupling	.2Ω		S-16501		
L5	1st Video IF	.3Ω		S-16274		
L6	2nd Video IF	.3Ω	.3Ω	S-16275		
L7	3rd Video IF	.3Ω	.3Ω	S-16604		
L8	4th Video IF	.3Ω	.3Ω	S-16605		
L9	5th Video IF	1.7Ω	.4Ω	S-16276		
L10	Peaking	6.1Ω		S-15058		
L11	Peaking	2Ω		S-15128		
L12	Peaking	6.5Ω		S-16356		
L13	Peaking	8Ω		S-16011		
L14	Peaking	14.9Ω		S-16239		
L15	1st Sound IF	1.8Ω	2.5Ω	S-16652		
L16	RF Choke	8Ω		S-16011		
L17	2nd Sound IF	8.8Ω		S-16656		
L18	Quadrature	5Ω		S-16013		
L19	Vert. Size Trans.	75Ω	10.5Ω	S-16571		
L20	Horiz. Osc.	250Ω		S-16186		
L21	Width Coil	5.6Ω		S-16556		
L22	Peaking	14.9Ω		S-16239		Not used on all chassis.

ZENITH MODELS G2322, G2340,R, G2346R, G2353E, G2441,R, G2442E,R, G2448R, G2957,R, G2958R, G3059R, G3062

TV PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ZENITH PART No.		NOTES
M1	Bayonet						Type NE-51 Neon Lamp

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	RF Tuner		
M3	Fuse	136-16	.25A 250V
M4	Switch	85-476	Vert. size
M5	Crystal	103-1	Video Det. 1N64
M6	Integrator Assembly	87-1	
M7	Ion Trap	S15728	
	Wrench	68-12	Oscillator Adjusting
	Knob	46-771	Vert. hold, Horiz. hold, Contrast, Brightness, Fine tuning
	Knob	46-846	Ch. Sel
	Knob	46-847	Volume
	Knob	46-848	Ant. Tuning

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V25	RF Amp.	12BA6	12BA6	7BK	
V26	Converter	12AT7	12AT7	9A	
V27	1st IF Amp.-Phono Pre.-Amp.	12BA6	12BA6	7BK	
V28	2nd FM IF Amp.	12BA6	12BA6	7BK	
V29	Limiter	12AU6	12AU6	7BK	
V30	Disc.-Det.-AF Amp.	19T8	19T8	9E	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C99A	10	450	22-2142F	AF22J			TVL-207	■ Decoupling
B	10	450						▲ Decoupling
C100	.05	200		P288-05			TM-15	AVC Filter
C101	15			GP15K	D6-150	GP1K-15	MS-415	Ant. Coupling
C102	15			GP15K	D6-150	GP1K-15	MS-415	Ant. Coupling
C103	1000			GP1000M	D6-102	GP2L-001	1FM-21	RF Screen Bypass
C104	30			GP30M	D6-330	GP1K-33	MS-43	RF Cath. Bypass
C105	100			GP100M	D6-101	GP1K-100	1FM-31	RF Plate Decoupling
C106	22			GP22K	D6-220	GP1K-22		Fixed Trimmer
C107	1000			GP1000M	D6-102	GP2L-001	1FM-21	RF Coupling
C108	1				D2-1			Osc. Coupling
C109	22			CN22JN080		N080-331-22		Fixed Trimmer
C110	50			GP50K	D6-500	GP1K-50	1FM-45	Osc. Grid Cap.
C111	1000			GP1000K	D6-102	GP2L-001	1FM-21	Fixed Trimmer
C112	1000			GP1000M	D6-102	GP2L-001	1FM-21	DC Blocking
C113	10000			BPD-10	D6-103	821-01	36C1	Conv. Filament Bypass
C114	10000			BPD-10	D6-103	821-01	36C1	Conv. Plate Decoupling
C115	.05	200		P288-05			TM-15	Phono Isolation
C116	50			GP50K	D6-500	GP1K-50	1FM-45	Osc. Feedback
C117	33			GP33K	D6-330	GP1K-33	MS-43	Osc. Feedback
C118	.1	200		P288-1			TM-1	Osc. Grid Cap.
C119	10000			BPD-10	D6-103	821-01	36C1	Audio Coupling
C120	10000			BPD-10	D6-103	821-01	36C1	Audio Coupling
C121	.002	600		P688-002	D6-202	GP2M-002	TM-26	1st IF Screen Bypass
C122	10000			BPD-10	D6-103	821-01	36C1	1st IF Fil. Bypass
C123	100			GP100M	D6-101	GP1K-100	1FM-31	Diode RF Filter
C124	10000			BPD-10	D6-103	821-01	36C1	2nd IF Cath. Bypass
C125	10000			BPD-10	D6-103	821-01	36C1	2nd IF Fil. Bypass
C126	.004	600		P688-004	D6-472	811-005	TM-24	2nd IF Decoupling
C127	10000			BPD-10	D6-103	821-01	36C1	Limiter Decoupling
C128	.001	200		P688-001	D6-102	GP2L-001	TM-21	De-emphasis
C129	10000			BPD-10	D6-103	821-01	36C1	Audio Coupling
C130	.0005	600		1468-0005	D6-501	GP2K-500	TC-35	AF Amp. Plate Bypass
C131	4000			P688-004			TM-24	Tone Compensation
C132	.01	200		P488-01	D6-103	821-01	TM-11	Tone Compensation
C133	.05	600		P688-05			TM-15	Audio Coupling
C134	10000			BPD-10	D6-103	821-01	36C1	DET-AF Amp. Fil. Bypass
C135	100			GP100M	D6-101	GP1K-100	1FM-31	Ant. Coupling

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R133	1 Meg.		63-2087	Q13-137X	T-109	BT-72	Volume control tapped at 200KΩ
R134A	1 Meg.		63-2088	Q11-137	AM-61-S	AN-69	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R134A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
R135	39Ω	1/2			Parasitic Supp.
R136	68Ω	1/2			RF Cathode
R137	220Ω	1/2			RF Screen Decoupling
R138	220Ω	1/2			RF Plate Decoupling
R139	6.8 Meg.	1/2		BTS-6.8 Meg.	Conv. Grid
R140	390Ω	1/2			Parasitic Supp.
R141	6 8 Meg.	1/2		BTS-6.8 Meg.	AVC Network
R142	470Ω	1/2			Parasitic Supp.
R143	10KΩ	1/2		BTS-10K	Osc. Grid
R144	220Ω	1/2			Osc. Plate Decoupling
R145	2.2 Meg.	1/2		BTS-2.2 Meg.	AVC Network
R146	220KΩ	1/2		BTS-220K	Tone Compensation
R147	470KΩ	1/2		BTS-470K	AVC Network
R148	220Ω	1/2			1st IF Decoupling
R149	1800Ω	1		BTA-1800	Decoupling
R150	1 Meg.	1/2		BTS-1 Meg.	Diode Load
R151	47KΩ	1/2		BTS-47K	Diode Filter
R152	100Ω	1/2			2nd FM IF Cathode
R153	820Ω	1/2		BW-1/2-820	2nd FM IF Decoupling-Wire Wound
R154	100KΩ	1/2		BTS-100K	Limiter Grid
R155	27KΩ	1/2		BTS-27K	Limiter Decoupling
R156	150KΩ	1/2		BTS-150K	Disc. Diode Load
R157	150KΩ	1/2		BTS-150K	Disc. Diode Load
R158	100KΩ	1/2		BTS-100K	De-emphasis
R159	4.7 Meg.	1/2		BTS-4.7 Meg.	AF Amp. Grid
R160	56KΩ	1/2		BTS-56K	AF Amp. Plate
R161	39KΩ	1/2		BTS-39K	AF Amp. Plate
R162	4500Ω	20		DG-4500	Filter-Wire Wound
R163	250Ω	10		AB-250	Filament Dropping-Wire Wound
R164	10 Meg.	1/2		BTS-10 Meg.	Phono Isolation
R165	220KΩ	1/2		BTS-220K	Phono Osc. Grid
R166	68KΩ	1/2		BTS-68K	Phono Osc. Plate
R167	220Ω	1/2			Conv. Plate Decoupling
R168	4700Ω	1/2		BTS-4700	Filter
R169	22KΩ	1/2		BTS-22K	Tone Compensation

COILS (RF-IF)

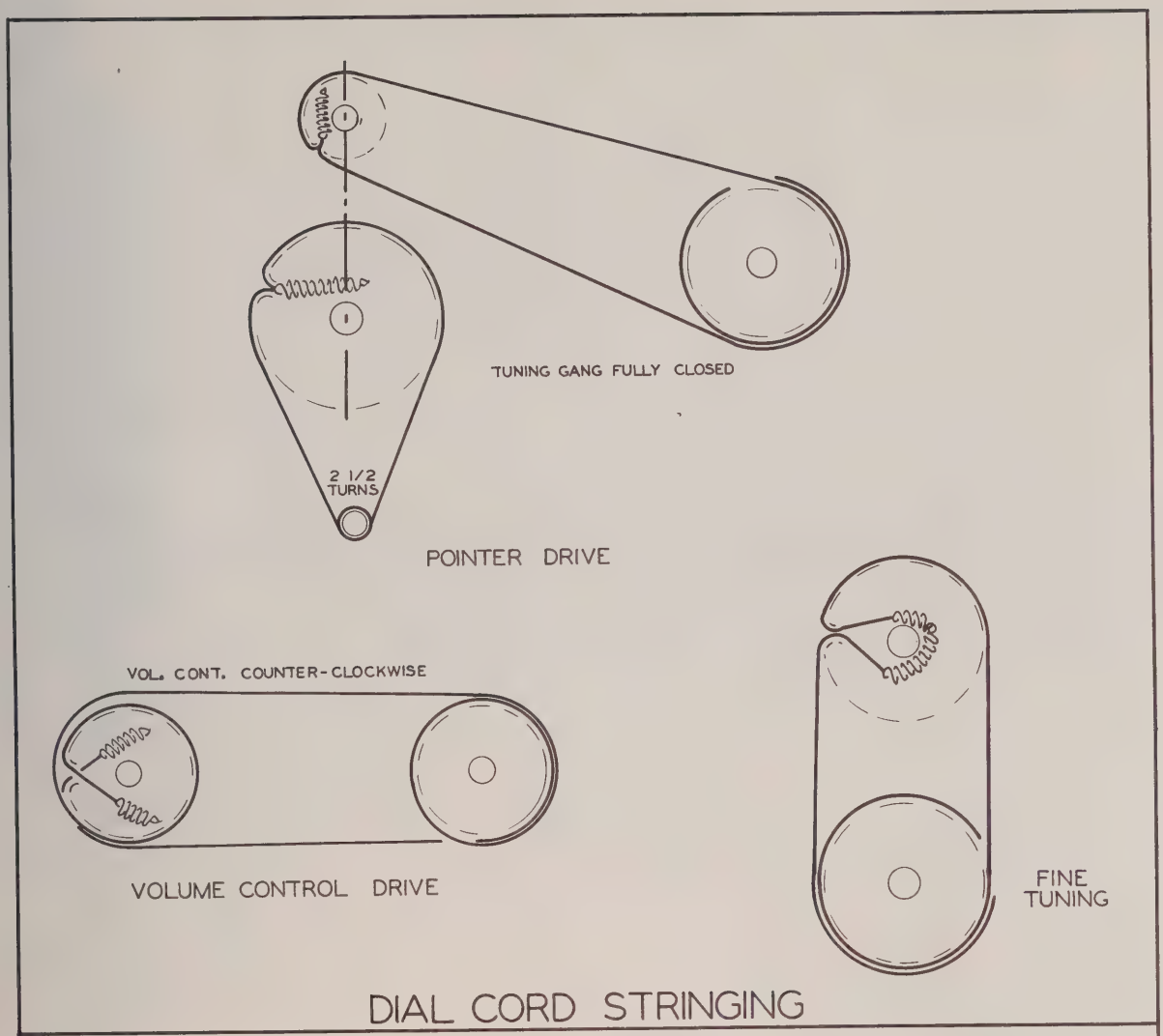
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
L23	FM Ant.	.2Ω				
L24	FM RF Trans.	.1Ω	.1Ω			
L25	FM Osc.	0Ω	0Ω			
L26	Loop Ant.	1.6Ω		S16395-360		
L27	AM RF Trans	3.1Ω	12.5Ω			
L28	AM Osc.	1.2Ω	10Ω			
L29	1st FM IF	.5Ω	.5Ω	95-1201		
L30	1st AM IF	5.5Ω	19Ω	95-1200		
L31	2nd FM IF	.5Ω	.5Ω	95-1150		
L32	2nd AM IF	18Ω	18Ω		16-6678	
L33	3rd FM IF	5Ω		95-1152		
L34	Disc. Trans	.5Ω	.5Ω	95-1153		
L35	Phono Osc.	2.1Ω				
L36	Fil. Choke	3Ω				

DIAL LIGHTS

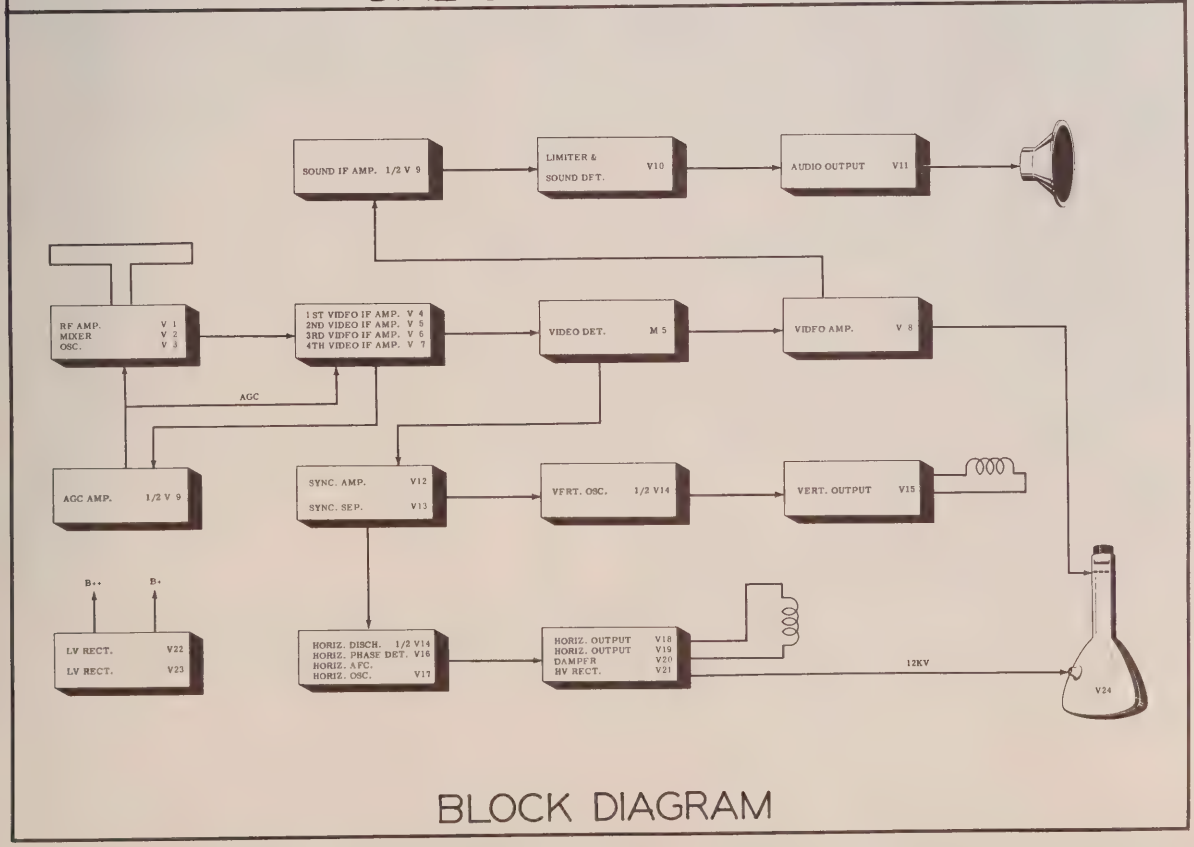
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ZENITH PART No.		
M8	Bayonet	117			100-97		Type 10 watts, 110-125V

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M9	Switch		Phono-AM-FM
M10	Switch		TV-Radio
M11	Tuning Cap.		



DIAL CORD STRINGING



BLOCK DIAGRAM